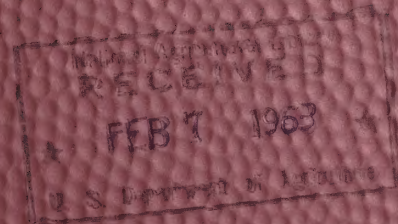


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Ch
Gloeckner



**CHRYSANTHEMUM
MANUAL**

1963

Fred C. Gloeckner & Company, Inc.
15 East 26th St.
New York 10, N. Y.

ORDERING AND TERMS

Chrysanthemum cuttings can be delivered to you more economically when production can be planned well in advance. It is to your advantage cost-wise to place orders early as indicated by the following pricing tables!

EFFECTIVE APRIL 1, 1963

The price listed for each variety is the rate per 1000 cuttings of that variety **BOOKED 22 WEEKS IN ADVANCE** of requested shipping date.

NUMBER OF ROOTED CUTTINGS ORDERED:

1000 of one variety	See listed price.
500-900 of one variety	Listed price plus \$.20 per 100 cuttings
300-450 of one variety	Listed price plus \$.40 per 100 cuttings
100-250 of one variety	Listed price plus \$.60 per 100 cuttings
50 of one variety	Listed price plus \$.01 per cutting

INDIVIDUAL VARIETIES ORDERED:

22 weeks before shipping	See listed price.
18 weeks before shipping	Listed price plus \$.20 per 100 cuttings
14 weeks before shipping	Listed price plus \$.40 per 100 cuttings
10 weeks before shipping	Listed price plus \$.60 per 100 cuttings
6 weeks before shipping	Listed price plus \$.80 per 100 cuttings
Less than 6 weeks	Listed price plus \$1.20 per 100 cuttings

DATE OF ANY CHANGE on an order previously booked will automatically determine the price of each variety affected by such a change. (Items not changed will have their price based on the receiving date of the original order).

ROYALTIES are listed separately and are not included in the price. Royalties are not subject to discounts and the full amount of royalty is due on each cutting.

QUANTITY DISCOUNTS are based on the total number of cuttings purchased by a customer for shipment within a 52 week period. Beginning December 30, 1963, this discount schedule will be based on the total number of cuttings purchased from a single Yoder Sales Representative.

10,000	3%	80,000	8%
20,000	4%	100,000	9%
30,000	5%	125,000	10%
45,000	6%	150,000	11%
60,000	7%	180,000	12%

UNROOTED CUTTINGS—Net amount less \$10.00 per 1000 cuttings.

INVOICE PAYMENT IS DUE 28 DAYS from shipping date. After this date, net amount plus 10% is due.

TERMS OF SALE

Fifty rooted cuttings of each variety is the minimum that can be supplied. More than 50 of a variety must be in multiples of 50.

In order to facilitate completion of orders at time of shipment it is advisable to state at time of ordering whether substitutions or back-ordering of varieties not available will be permitted.

Every effort is being made to deliver stock which is free from pests, but purchases must be made with the understanding that we assume no responsibility for losses which may result from same.

To facilitate deliveries, cuttings will be shipped on Monday and Tuesday of each week. However, we will gladly make

shipment on Friday or Saturday, if specifically requested and provided the order is received one month prior to the requested shipping date.

WARRANTY AND LIMITATION OF LIABILITY: Subject to the limitations of liability herein set forth, we warrant that the seeds, plants or bulbs sold are as described on the container, within recognized tolerances. Our liability on this warranty is limited in amount to the purchase price of the seeds, plants or bulbs. In no event shall we be liable for the crop, or for any loss due to the failure, impairment or quality thereof or varietal variance therein, whether such loss results from breach of the foregoing warranty, from breach of any other provision of the buyer's contract for purchases of said seeds, plants or bulbs, or from any other cause.

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

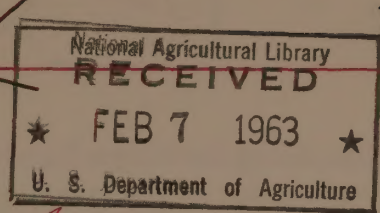
^{Fred C.}
Gloeckner
&
Company
Incorporated

15 EAST 26th STREET • NEW YORK 10, NEW YORK

Telephone: ORegon 9-6460 - 6461 • Cable Address: GLOECKNERS, N. Y.

A Better Chrysanthemum Industry

Gloeckner



CULTURE

In Support of the Breeder Grower Agreement

New varieties have been aptly termed the life blood of the flower business. We in the chrysanthemum industry are well aware of the contributions of the plant breeders to our business. Many of you can personally recall the varietal progression from such varieties as Norma, Princeton, Rolinda, Gold Coast, Yukon, and Nevada, and up to the present group of varieties by which we judge production and beauty.

The situation that has to be faced up to today is how to reward the plant breeder of vegetatively propagated plant species. The plant breeders' product is a new variety, but to date it has not been possible for him to market his product at a price that would encourage him to continue to aspire to a higher level of development. In addition he does not have at his disposal any defined legal procedure for guaranteeing control over his product. The plant patent is specific in that it recognizes even slight variations in color, form, size and vigor in such a way that the finder of a sport often reaps more advantage than the originator, who paid for the hybridization, development and promotion of the original variety.

Plant breeding is an exact science requiring knowledge and control of both parents. A modern breeder who can produce one outstanding variety in ten thousand seedlings would hastily admit to God's countenance. Statistical proof of this is evident in the following examples: In a period of over 50 years (1908-1949) the University of Illinois maintained a controlled chrysanthemum breeding program and during this time introduced only 103 varieties. Probably less than 25 percent of these varieties are now used commercially. In crosses between commercial doubles, 50 percent or more of the progeny are single or smaller than the original parents and have no commercial value.

It normally requires five years of intensive work to become completely knowledgeable on a new variety, build sufficient stock to introduce it, and to promote its value in the industry. In 1938 the first crosses were made for the variety we now know as Iceberg. It took controlled line breeding through six varieties: Sea-Gull, Arcadia, Vesper, Pristine, Encore and Whitetop to finally produce Iceberg in 1951. Even after arriving at this point it required four more years of intensive information gathering before it could be released.

The cost of capable personnel and greenhouse space necessary for the crossing, selection, recording and constant testing are continuous once one has embarked on a breeding program. No grower nor propagator who has not invested in plant breeding can have an accurate idea of the scope of an organization necessary to recover these costs. It is with all this in mind that Yoder Bros. Inc., in cooperation with chrysanthemum breeders of Europe and United Kingdom, has attempted to draw up a sound business basis for supporting plant breeding so as to encourage plant breeders to create more variety improvements for the industry. Under the Breeder Grower Agreement plan all customers who purchase cuttings sold under terms of Grower Agreement voluntarily subscribe to the plan for promoting and supporting plant breeding. This agreement applies only to varieties originated by plant breeder participants and sports of the varieties that were introduced under the agreement. It is imperative that a sport be recognized as part of the original product of the new variety, even though latent in its expression. A particular sport can only arise as the result of the potential of the genetic combination the breeder put together.

For the reasons outlined above we believe in and subscribe to the B.G.A. plan in its broadest scope as a means of bettering the horticultural industry.

Fred C.
Gloeckner
&
Company,
Incorporated

Handling Cuttings Rooted

All cuttings are packed in specially designed boxes that provide the best environment possible while in transit. All cuttings are rooted in a light medium designed to provide optimum aeration and moisture for the root system.

Cuttings are sufficiently rooted to plant directly into their final location. Some protection in the form of temporary shade or light syringing may be desirable for the first four to five days, but this should be discontinued as soon as plants are turgid and new root growth is observed. If at the end of 48 hours the plants are not turgid during the morning hours and new white growth is not visible then one of the following factors is restricting growth: Roots are not receiving sufficient oxygen, as a result of the soil being too tight or cuttings planted too deep; roots are injured from fertilizer salts in soil as evidenced by browning or blackening of root tips; root system is not receiving sufficient water as a result of soil not being thoroughly watered prior to and after planting.

Since rooting and shipping tend to deplete the nitrogen in the cutting it is beneficial to water in the cuttings with a starter solution. Growers using a Fert-O-Ject may use the same solution as they use on older, established plants.

At the end of one week's growth the root system of actively growing plants should easily create a soil ball 6" square when held in your hands.

Handling Cuttings Unrooted

Unrooted cuttings must never be permitted to lose moisture to the wilting point. Failure to observe this rule will result in failure to root, and often those cuttings that do regain turgidity never perform optimally. The use of refrigerated storage should be avoided or kept to the barest minimum. Time for propagating on the buyer's place must be allowed when setting delivery dates.

Only direct air and refrigerated truck shipments should be used for unrooted cuttings.

Deliveries

With the advent of the time pinch and precision method culture, it is necessary to have cuttings arrive on a definite date. To assure proper delivery, advance notice should be given the propagator. We would appreciate it if you could let us know your requirements early enough so that our propagator can plan his growing of stock plants and cuttings even more systematically. If your present method of shipping is not satisfactory, we encourage you to contact us with your suggestions as to how it may be improved.

Delays

With the reduced delivery schedule of the Railway Express Agency, there may be delays in delivering shipments. Chrysanthemum cuttings can be injured from cold as well as being too long in transit. If the cuttings are slightly wilted, they should be immersed in water for a short period and then planted. If the cuttings have been slightly frozen, place them in a cool room and thaw them out gradually. It is also possible to place them in a pail of cool water for a short period before planting. Of course, if stock is badly frozen, or if long delays have occurred so that the cuttings are heated, yellowed or rotted, a claim must be filed at once with the carrier. Air Freight and truck shipments have speeded up deliveries.

If your experience with claims has not been satisfactory, please have the carrier fill out an Inspection Report, sign it and mail to:

Fred C.
Gloeckner
&
Company,
Incorporated

15 EAST 26th STREET, N. Y. 23, N. Y.

SOILS

The time taken and money spent in the cost of proper soil preparation should be considered the same as taking out an insurance policy on the success of your crop. Year-round growing has progressed to a degree of precision that will not permit the grower to have production losses due to factors he can control.

Maintain an open, well-aerated soil that drains well in addition to having some moisture-retention capacity. Periodic additions of organic matter to greenhouse soils is necessary for maintaining these desired properties that are associated with good soil management.

In order to achieve uniformity in soil it is necessary to add uniformly responding material. Of the various sources of organic material available German peat has been the most reliable form of soil additive. This is the result of the availability of a uniform grade, the slow rate of breakdown and the high degree of moisture retention it promotes in the soil. Other forms of organic matter can be used just as successfully but usually they require more study and effort to achieve the same results.

Caution should be exercised in the use of peat in soils that are naturally high in moisture retention. In cases where natural high soil moisture results in improper aeration, an inorganic additive such as perlite will be more effective in improving soil aggregation.

Greater care in soil preparation permits rapid penetration of water and air and a uniform supply of fertilizer. If water remains on the surface of your soil for more than a few moments after watering, the soil is not of good, open structure.

During the winter period, chrysanthemum plants are much more sensitive to overwatering and high soluble salts than during spring, summer and fall. When sterilization is arranged to just precede the planting for the winter crops, the results are best.

Chemical Sterilization

Where steam is not available any of the following chemicals may be used to do a comparable job:

Methyl Bromide: Commonly called MC-2 is a combination of **Methyl Bromide** with 2% chloropicrin (tear gas) to act as a warning agent. It will give good control of nematodes, weed seeds and certain fungi. **Methyl bromide** is not an effective control for verticillium wilt.

Larvacide-chloropicrin: Commonly called tear gas, it is effective on fungi, nematodes, weed seeds and soil insects, and will control verticillium wilt. Apply with a special applicator by plunging approximately 1½ to 3 cc. per square foot of area.

Vapam: A relatively new material that has been effective in the control of nematodes, soil fungi and weeds. Higher rates will give complete control while lower rates will control weeds.

Mylone: A new material that is applied in a pellet or liquid form and does not require rototilling. This material shows promise on outdoor crops.

Various combinations of the above materials are available such as **BROZONE, TRIZONE, VORLEX**, etc. All of these materials are toxic to man and growing plants, therefore, caution in their use is necessary. After applying these materials the soil must be covered for best results and a period of aeration prior to planting is a must to prevent injury or death of plants. Low soil temperature and excessive soil moisture frequently limit the use of these materials.

In general, most effort expended in outdoor sterilization is in hope of obtaining weed control, except in the case of verticillium wilt.

Where chemical sterilization is used, most effective weed control is obtained where planting bed is made complete several days prior to treating and is covered to permit seed germination when gassed. If possible it is better not to disturb the soil in the bed after treating unless aeration is a problem. The reason being; most gasses are effective on seed that is displaying some sign of active germination. Northern cloth house operators should consider Fall treatment of soil followed by Winter plastic cover for spring planting.

STEAM STERILIZATION

The soil moisture level just prior to steaming is very important and is a point that is very sadly abused. Dry soil will not conduct heat efficiently and wet soil tends to condense excessive moisture. The soil should be in the same condition that is considered desirable in which to plant. This is called "friable" and means that after forming a soil ball in the hand that it can be crumbled with two fingers.

Moisture content of soil is important because of these reasons:

- (1) Heat combined with moisture does a better job of killing micro-organisms and weed seeds.

- (2) Steam applied to a soggy soil will destroy soil structure while the steam requirement for excessively dry soil is very high. Soil moisture correct for planting or slightly less is most satisfactory for steaming.

Large clods of soil should be broken so that the heat can penetrate to all areas uniformly.

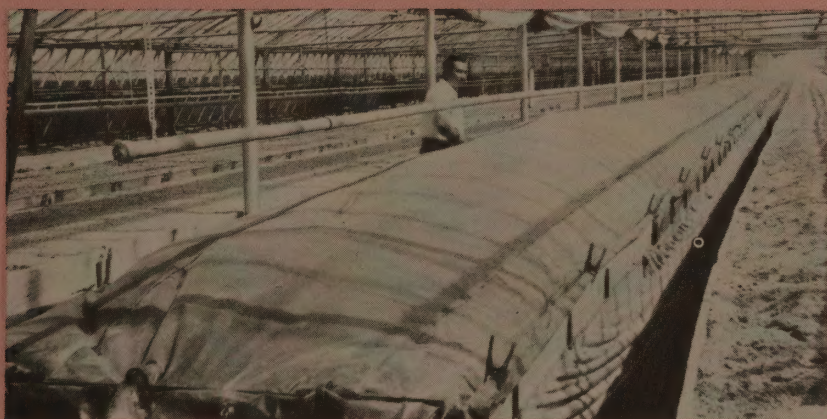
Steam can be efficiently distributed to all sections of the bench simultaneously by the use of aluminum tubing 3" in diameter (with holes drilled in). Canvas hose with eyelets also works well. With both materials, two runs are recommended per 4-foot bench.

The soil should be held at the coolest spot to 180 degrees F. for 30 minutes, or when it first hits 200 degrees F. Be sure to use an accurate soil thermometer every time and **do not guess**. The steam cover should be removed as soon as the desired temperature is reached so that the excess steam can escape into the atmosphere without condensing in the soil. **As soon as the soil is cool enough to handle, it is time to start planting—THE VERY BEST TIME.**

Yellowing and retardation of growth which sometimes follows steaming is often caused by ammonium salt build-up which can be overcome by leaching the previous crops prior to, or immediately after, finishing the cut, and avoiding of ammonium bearing fertilizers at the finishing stages of the crop. It is apparent that soil preparation for the next crop should be thought of as beginning with the finishing stages of the previous crop.

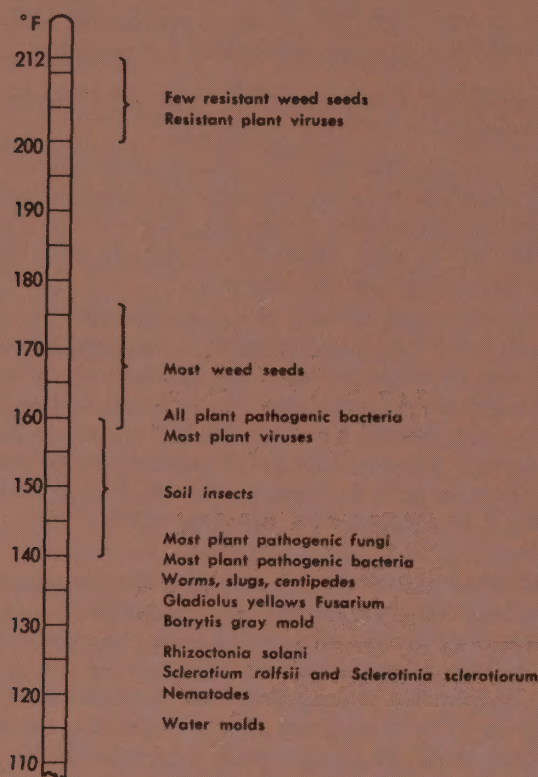
Steam, in forcing its way down through the soil, creates millions of tiny pores which will remain for the life of the crop if undisturbed. It is therefore strongly recommended that soil not be rototilled or worked over again prior to planting.

When steam sterilizing, some growers use a plastic cover (not polyethylene) about 16 feet wide so that it can be extended to cover the aisles. This surface-steamers the benches and bench supports. Instead of injecting steam into the end of the bench where there is danger of not reaching required temperature at the point of injection, it is suggested that the steam pipe be entered on the side about 8 to 10 feet from the end of the bench. A "T" is used whereby a ¾-inch pipe directs the steam to the short end and the long end is equipped with a 2-inch pipe. By this means there is even distribution.



NOTE CLAMP AND ANGLE IRON USE IN STEAMING

Steam Sterilization Cont.



Reprinted from California Agric. Exp. Sta. Bulletin No. 23.
These various temperatures need to be maintained for 30 minutes
to control the organisms listed. Use an accurate thermometer.

Two weeks prior to removing the old crop start to leach the bench. All soluble salts can generally be removed with two or three good heavy waterings. It is much easier to do this when the old crop is still in the bench as it pulls the moisture from the soil. If excess soluble salts are not leached before steaming, serious trouble can result because steaming often releases chemicals that were not available prior to steaming.

The bench should be properly rototilled and the desired amount of organic matter added along with the necessary fertilizers **before** steam sterilization.

FERTILIZERS

Application prior to sterilizing: Whether one practices chemical or steam sterilization the following amount of fertilizers should normally be added prior to sterilizing.

- | | |
|--|-------------------------|
| (1) Treble Superphosphate | 5 lbs. per 100 sq. ft. |
| (2) Calcium Carbonate
(Ground Limestone)
or Gypsum | 10 lbs. per 100 sq. ft. |

Addition of above fertilizers is not always necessary nor desirable on soils that have been repeatedly fertilized and cropped. The bench should **not** be reworked after steaming because of the possibility of recontaminating the sterile soil.

Most ground limestones contain sufficient minor elements, as impurities, to make it unnecessary to apply them in the fertilizer program unless your soil has known specific deficiency, as determined by testing and symptom expression. With the advent of modern fertilizer formu-

lation the necessity for special minor element supplementation has diminished since most fertilizers contain minor element additions as a regular practice, and growers should be cautious when using additional material since excesses can be very harmful, and are often extremely difficult to eliminate. Simple leaching will not serve in this case, as it does in other excesses.

FERTILIZING

Application

Chrysanthemums do much better right from the start if the soil is not too rich. Very often this crop will start off faster in new soil as compared to old soil that has been sterilized, just because of the lower nutrient level in new soil. When using new soil, apply 5 pounds of superphosphate per 100 square feet of area, plus a liberal application of organic matter before planting. Phosphorus moves slowly within the soil mixture. It should always be added before the crop is benched so that it may be mixed thoroughly into the soil. Liquid feeding with water-soluble fertilizers is fast becoming the popular method of applying fertilizer.

Water soluble fertilizers are available in many different analyses and therefore you can apply the fertilizer your soil requires. Many growers are feeding soluble fertilizers through their automatic watering systems. Remember to apply weaker solutions of fertilizer more frequently rather than heavy doses less frequently.

Nutrient deficiencies in the greenhouse rarely occur as rapidly or as severely as those described in experiments. For this reason soil tests should be made as early as possible upon expression of even slight symptoms.

Most university agronomy departments will analyze soils for nutrient levels and make recommendations for best crop results.

Levels of Nutrition

When using sterilized soil, the best recommendations to follow would be to analyze your soil frequently. We have found that when the following nutrient levels are kept, good crops are the result. **Nitrate nitrogen should be 25-60 p.p.m.; phosphorous 4-6 p.p.m.; potassium 20-40 p.p.m. and calcium 200 to 250 p.p.m.**

Soil fertility levels should not vary too much from the above and where frequent liquid fertilizer applications, such as with a Fert-O-Ject are used, they will not.

Complete fertilizers in dry form are commonly applied at the rate of 2 pounds per 100 sq. ft. of growing area commencing shortly after planting and ending sometime before buds show complete color expressions. Sandy soils will require somewhat more frequent applications than clay or silty loam soils to maintain fertility levels. Remember that the plant is the best guide to fertilizer requirements and more crops are ruined from over fertilization than from nutrient deficiencies. Learn to recognize what good growth looks like at various stages of the crop. Where dry fertilizers are used it is essential that timing of applications be made when they are most effective. There are three important periods in the normal growth cycle that require optimum levels of nutrition, and, to insure this, dry fertilizer applications are timed accordingly:

- (A) Prior to pinching to insure sufficient nutrients to the new shoots arising from the pinch.

- (B) Prior to the beginning of lights-out period or black cloth application, to insure sufficient nutrients for bud initiation and development.
- (C) Prior to the expression of color or shortly after the bud is plainly visible, to insure sufficient nutrients for flower enlargement, and color development.

It should also be remembered that flowers from deficient plants at the time of cutting do not ship well and have poor keeping quality.

During the darkest period of winter potassium and calcium bearing nitrogen fertilizers will often produce a better crop response than ammonium or urea bearing forms.

Soluble Salts

Soluble salts are chemical compounds consisting of an acid part (ion) and a basic part (ion). For example, common table salt, sodium chloride, consists of one ion of chloride and one of sodium. Chloride is an acid-forming ion, and sodium a basic or alkali-forming ion. The two combine in chemically equivalent quantities to form a neutral salt. Other common acidic ions are sulfate, nitrate, bicarbonate and phosphate. Other common basic ions are calcium, magnesium, potassium and ammonium. Any basic ion may combine with any acidic ion giving rise to a great variety of salts.

All plant nutrients which are absorbed by plants from the soil or from culture solutions are absorbed in the form of salts or their constituent ions. All organic materials become "mineralized" through decay processes, and the nutrients in them are converted into salts before being absorbed by plants. Some salts contain plant nutrients and are beneficial in the small quantities required for plant growth. Others contain no nutrients. All salts are harmful beyond the small quantity required for plant growth. A little is bad, more is worse, up to the point where plants will be killed. Salts are found in most water and are applied as fertilizer. Improper watering may permit a concentration into the harmful range. Instruments called Wheatstone's bridges (Solubridge) are available which measure total soluble salts in terms of electrical conductivity or conductance. Many laboratories of the Agricultural Extension Service are equipped with Solubridge instruments for use in assisting with soluble salt problems.

It has been found that when planting rooted cuttings, the Solubridge readings should not be higher than 40, while established plants do not withstand readings of 100 without showing some harmful effects. To remedy excess soluble salts, apply 2 to 3 gallons of water per square foot and leach out this high salt content.

PLANTING

Planting Date

The proper planting date will vary according to the period of the year you desire to flower and the time permitted for growth of the plant prior to pinch.

Cuttings may be planted and allowed to flower without pinching. This is often used to improve quality. It also permits more crops a year from the same growing area.

Planting Rooted Cuttings

When shipped all cuttings are active enough in growth and sufficiently rooted to permit planting directly into permanent locations. This method is recognized as being the most practical since it eliminates the check in growth commonly associated with transplanting. Never plant cuttings any deeper than they were in the propagating medium.

Apply sufficient water to new plants to set soil firmly around the base of the roots and to establish proper water movement within the soil.

When Rhizoctonia is a problem, water the plants in, or within one day after planting with a solution of 1 to 1½ pounds of Terrachlor (75% wettable powder) per 1000 square feet. Terrachlor will not eradicate Rhizoctonia but inhibits the ability of the organism to infect, therefore, it is important to treat plants as early as possible and questionable whether treatment after disease appearance is useful.

Single Stem or No-Pinch Method

Cuttings are planted and allowed to grow without pinching. It is an essential practice if the maximum number of crops a year are to be realized. Where crops are planted from September 15 to February 1, the no-pinch method produces a crop superior in uniformity of flowering and spray formation.

Natural Light Intensity

Newly planted cuttings should have some protection in the form of a temporary shade and several light syringings for the first five to seven days. It is questionable whether it is necessary to shade cuttings in air cooled greenhouses. After plants are established, a minimum amount of shade should be used—never reduce natural sunlight over 36 percent for satisfactory growth. Further light reductions will necessitate an adjustment in spacing to produce a satisfactory crop. Research work has shown that chrysanthemum production is directly related to light intensity. In other words, the greater the light intensity, the greater the production. This makes clean glass a must in the winter months. Natural or amber colored Saran, having a calculated shade of 36° F, has been found the most satisfactory for cloth house culture.

Planting Distance for Pinched Crops

For good quality chrysanthemums, we prefer to plant 7 x 7 inches or 8 x 8 inches pinched once, and thin the shoots to 3 per plant. On vigorously growing varieties the outside rows will support one more stem than the center rows in the bed. Light intensity should be high at the base of the plant for quality blooms, and if planted too closely, we lose the factor which promotes quality.

Planting Distance for No-Pinch Crops

Pompons.....	4 x 6 inches
Standards.....	5 x 6 inches
Fast Disbuds.....	4 x 6 inches (Summer)
Fast Disbuds.....	6 x 6 inches (Winter)

PINCHING

Pinching in modern day chrysanthemum culture serves three functions:

(1) To produce lateral stems which can be flowered thereby reducing plant cost and enhancing uniformity in the crop.

(2) To determine the type of spray formation developed on pompons.

(3) To determine the type of bud formation (crown or terminal), subsequent development and fullness of the flower, and the amount of necking of flowering stem on standards. Many factors affect the formation and development of buds on a chrysanthemum plant, one of which is the length of time a stem has grown prior to budding.

Experiments and field observations have shown that plants pinched too early produce crown buds and the laterals developing as a result of this crown are usually long and uneven in flowering response. When plants are pinched too long after planting the lateral stem length is very short and the flower heads tend to be crowded together and set on uneven planes making an undesirable spray formation.

The schedules outlined in this book for pompons are designed to produce a crown bud which is surrounded by short-branched laterals that are in proportion to the overall stem lengths and will flower uniformly.

Regardless of the time period between plant and pinch, **all pinches must be made into the soft growth.** Soft growth is most easily defined as growth that has occurred since planting that can easily be broken with a light twist of the thumb and forefinger. Failure to pinch soft can often result in low shoot count and retarded development of shoots. The result is often an uneven crop with poor production. Pinching into hard wood often disturbs the root system of the plant because of the force required to cut the pinch from the plant. Improper pinching can easily reduce the production potential. Schedules outlined in book are designed to provide 4-5 inches of new stem growth prior to date of pinch of which grower will normally remove half in pinching operation.

Pruning Pompons

If all the shoots that arise from a properly pinched plant were permitted to flower there would be little uniformity within the flowering stems, and many of the stems would not have satisfactory substance or strength to be of marketable value. In order to gain consistency in stems on pompons no more than 3 stems per plant should be permitted to develop on the inside rows of the bed and four stems per plant on the outside rows. If fewer stems per plant are desired the spacing may be decreased slightly but an average of 17 to 20 square inches per stem has been found most satisfactory.

Pruning Standards

Standards are usually grown two stems per plant with three on the outside rows.

The most common error in pruning is waiting too long after pinching before selecting the correct number of stems. A decided check in growth results from delaying the pruning operation. Pruning late when shoots are hard and woody only serves to remove accumulated energy that could have been used to good advantage on the

flowering stems. In addition, it usually leaves scar tissue which does not heal properly and may serve as a port of entry for disease organisms. **The practice of stripping all leaves below the pinch level at the time of pruning is questionable.** First, it removes potential food manufacturing organs, and secondly, it opens up avenues for disease entry. Thirdly, it is questionable if it can be practiced without disturbing the plant's root system.

DISSPRAYING AND DISBUDDING

Dispraying: Vigorous growing, large-flowering varieties often produce side shoots below the main spray after bud set which should be removed to promote the best development and timing of the flowering shoot. These side shoots develop most heavily during the high light intensity periods of growing and in greater abundance on the outside rows of the bench. It has been found especially beneficial to remove these shoots on crops which are flowered under black cloth.

In the Dot, Snowdrift and Pinocchio flower forms, maximum production will be attained only if all flower shoots are permitted to mature.

Removal of the center bud of the spray on many varieties of pompons will often assist in developing a more open spray. It also improves the keeping quality of the spray since the terminal flower is always older.

Early removal of this center bud for maximum results is important. Certain varieties during good growing conditions will initiate more buds than can develop into acceptable flowers. Removing part of the buds will improve the spray, timing, and increase the flower size on the remaining buds. On most varieties thinning to 4 or 5 buds per spray will produce higher quality flowers.

Disbudding: Varieties grown as standards or disbuds are grown so as to leave only one bud per stem. This is called "taking the bud." If you are growing according to the plant and pinch schedule given in the manual you will be able to take the first bud that appears. This is called a terminal bud.

Type of Buds

Terminal Buds: Terminal buds can be identified by the following traits: (1) A small, hard, central bud surrounded by a tight cluster of smaller buds all appearing similar and on a plane slightly below the center bud. (2) Normal-shaped leaf development up to the point of budding. (3) Terminal buds appear only after continuous short-day treatment as indicated by either shading or termination of lighting period.

Crown Buds: Crown buds are characterized by the following: (1) A somewhat softer and usually larger bud, often having enlarged strapped leafed shaped bracts in bud and surrounded by vegetative shoots having only leaf buds. Vegetative shoots are on a plane above the central bud. (2) Leaf shape may appear abnormal next to the central bud, being usually narrower and somewhat strap-shaped. (3) Crown may appear on plants at any time but will occur most often on natural flowering crops from October to December.

The fact that crown-budding can occur at any time is an important clue to its origin and the condition responsible for its occurrence. It requires fewer number of days of correct night length to set the bud than it does to de-



CROWN BUD FORMATION

velop the same bud, therefore a crown bud only appears when the period was correct for **setting** the bud, but the environment was not correct for **developing** the bud.

The above statement is also the key to the prevention of crown budding.

Some actual cases where this might occur are: (1) Black clothing is not done consistently; too many nights skipped or poor-quality black cloth permitting too much light to fall on plants. (2) Lighting interruption caused by clock failure, or light leaking from an outside source interrupting the dark period. (3) Artificial light intensity inadequate outside or slightly shaded rows not receiving proper light intensity. (4) Failure to follow schedule and the growth from the pinch prior to lights out or black cloth shading was over twenty-two inches in length. (This is more likely to occur during the more rapid growing seasons of the fall and spring.)

August-September crops can be retarded in flowering as a result of high temperatures during flower development. Such retardation if it is extensive enough can give the appearance of a crown bud development. Selection of variety and careful observance of good growing practices are the most effective means of controlling this.

In natural flowering of standards the following rule will assist in determining what to do with crown bud formation.

VARIETIES THAT FLOWER	REMOVE ALL BUDS THAT APPEAR BEFORE
Oct. 3 to Nov. 15	Sept. 5
Nov. 5 to Nov. 30	Sept. 26
Dec. 1 to Dec. 15	Oct. 3

Make the selection as early as possible to prevent the dog-leg appearance of the stem that develops from late selection on hardened stems.

Failure to Bud

Extremes of either high (85° F and up night temp.) or low (55° F and below) day or night temperature will act

to prevent bud initiation and development by producing vegetative growth responses.

Year round flowering results have indicated that best Chrysanthemum growth occurs at temperatures in the 60° F range. This is especially true prior to and during bud initiation period and somewhat less true during the late finishing stages of growth. In conjunction with the above statement, it should be noted that rapid fluctuations in night temperatures above 65° F and below 54° F on Winter crops after the buds are visible can cause serious delays and malformation of the bud. For best results when finishing Winter crops cool, do not lower the temperature in more than 2° F intervals over a 5-7 day period, and do not commence this operation until more than half maximum flower size and color has been attained.

In the case of short-duration low temperature emergency the question always arises as to what portion of the crop should be protected providing temporary facility will not permit complete minimal protection. Experience has shown that the most critical section of the crop is that portion which has been under a lights out condition for three to four weeks. At this stage of growth, failure to give adequate protection can result in critical injury to the bud which may be expressed in degrees of bud malformation ranging from marked petal reduction to complete abortion of bud. Stages of growth prior to or after the above will be affected but not to the degree stated above.

High night temperatures especially in Summer black cloth periods can cause plants to exhibit a nonbudding characteristic; however, this is most often expressed in non-development of the visible bud accompanied by the presence of many vegetative shoots which arise so as to surround the original bud. These shoots in turn produce visible buds which also fail to develop causing what is often called a compound spray formation. Such spray formations usually require effort in disspraying and disbudding to make satisfactory crops. The most satisfactory control for this is proper selection of variety and reduction of temperatures under Black Cloth. Certain normal Winter varieties exhibit nonbudding tendencies when grown at temperatures of 60° F and above, and for this reason should not be grown in warm houses or warm areas of the house. Here again experience in variety selection is the most important factor in prevention of this problem.

Final selection or disbudding timing is an important practice often overlooked. Selecting the bud too early, may cause injury if not done carefully. The more common error is late disbudding. This can appreciably reduce flower size, color intensity and could delay flowering by as many as 4 or 5 days.



TERMINAL BUD SURROUNDED BY SIDE BUDS

Premature Budding

Bud initiation can occur anytime during the spring months—whenever temperatures in the greenhouses are consistently 60 degrees F or above, and the days are short enough to initiate buds. These conditions can occur anytime from Sept. 1 to May 1 depending on the variety and the locality in which they are grown. Some varieties, such as the garden varieties and 8 and 9-week varieties, require very little short-day treatment, coupled with high temperatures, to initiate buds. This same tendency to set bud readily is what makes these varieties desirable for early shading and garden work. In order to prevent this premature setting of buds, these same varieties should be placed where they can be given additional light during the early spring months. Use 60-watt bulbs spaced 4 feet apart and 24 inches above the plants. Three hours of light during the middle of the dark period will usually prevent budding if the minimum intensity is 8 foot-candles. The same treatment on either end of the night might not be so effective during cloudy periods which create a shorter day.

NATURAL CROP TIMING: The natural flowering dates in our Manual have been a matter of some dispute between hybridizers. One school of thought believes that the flowering date given should be the date that most of the crop is ready to cut or sell under a normal growing season in the latitude of Ohio. The other school of thought is that the date given should be the day the crop "shows color."

Notwithstanding these theoretical differences in blooming date, we have actual differences caused by weather conditions. To understand why we have differences, let us explain that research workers believe that Chrysanthemum varieties have well defined crown bud cycles. By this we mean a natural tendency to produce a crown bud every 5 weeks. This cycle can be accelerated and accentuated by high temperatures, and conversely it can be interrupted by a few cloudy short days. This tendency is well defined in many of the American developments, but is absent or slight in European introductions.

You will, therefore, realize that the natural temperature and light conditions will influence the crown bud cycle, causing the flowering date to vary early or late.

Now the 8, 9 and 10 week varieties are thought to be high light and high temperature tolerant varieties, so far as bud initiation and development is concerned. Delayed flowering is seldom a problem with them. However, under adverse conditions, the size of flower is often reduced for this group.

The 11 through 14 week varieties are most inclined to delayed flowering. Unexpectedly high Summer or Fall temperatures, or a late Fall when days are brighter than normal, may delay bud initiation and slow down the early stages of development. The reverse of lower than normal summer temperatures permits earlier than normal bud initiation and development. A good example of this is the experience most of us have had in flowering Smith's White for Thanksgiving following a cool summer.

Flowering of a natural crop can also be influenced by the bench in which the crop is grown. Ground benches, we have seen, will flower 5 to 10 days after a raised bench of the same variety planted with the same batch of cuttings at the same time.

Some growers believe that the poor markets of the Fall natural crop are directly traceable to inability to control

the flowering date under natural conditions. For that reason more growers are using the schedule pages and are lighting and shading through the Fall. This is not a complete solution, but if a good ventilating system is used, almost perfect control can be established.

Shading—Petal Burn

When blooming chrysanthemums during high temperatures and high light intensity, it is advisable to cover the beds with a cheesecloth stretched about 18 inches above the top of the developing blooms. This covering will also help keep dirt off the open blooms. Sunburn sometimes is confused with flower ray blight, which is caused by Botrytis. Botrytis is more abundant during periods of high humidity and low temperatures.

Adequate moisture at the roots will help prevent petal burn during the hot summer days. However, it should be noted that tissue injured by petal burn is very susceptible to Botrytis.

Experience with air conditioned grown chrysanthemums would show that the use of fans alone, without the wet pads, are more beneficial to the plants. Apparently the high humidity, in combination with direct sunlight and relatively higher temperatures provides optimum conditions for sun scald and Botrytis petal blight. Keep humidity down, therefore at the finish of the crop. The softer the crop due to luxuriant feeding and watering practices, the more susceptible it is to Botrytis and burn.

Avoid deep reds, bronzes and deep pinks in the summer unless specifically recommended. Dark colors absorb the sun's heat. Lighter color reflect it. Varieties suggested in our schedules have been carefully selected for quality production under seasonal conditions.

Supports

With higher labor costs, it has become necessary to eliminate some of the labor in supporting standards and disbuds. The old way of supporting with stakes or stringing each plant has given way to the welded box-wire or cross-string method of support. Turnbuckles placed near the ends of the beds will keep the wires much tighter. Most growers are only using one layer of wire and cross strings and are gradually raising it as the crop grows.

Pompons are usually supported by the string and wire method similar to that described above.

Production losses because of failure to support the plant sufficiently or soon enough are not uncommon. Growth that is not vertical is often thin, weak and produces small leaves as a result of the excessive shade it receives. This type of growth even when supported properly will not produce satisfactory flowers. In cloth-house culture it is very important to maintain the wire supports as close to the flower head as possible at all times to prevent breaking of the flower stem under the weight of moisture accumulation and wind pressure.

Cutting Flowers

The outside rows of the bench will usually flower two or three days before the center rows. Flower stems are considered marketable when the most advanced flower is completely open but not reflexed on the outer edges, unless that is a variety characteristic. Pink and Bronze varieties are often cut sooner during high temperature periods to retain maximum color. The degree of tightness a flower is cut depends on many things as listed below.



CUT FLOWER CART

1. Variety—Certain varieties are normally cut tight to preserve color while others are noted for blowing their form rapidly and therefore are cut somewhat tighter than the accepted rule. Some pompon varieties normally develop many small to medium flowers that are in many stages of development at any one time, and a grower may find it necessary to cut some stems with less developed flowers.

2. During the winter it is well to permit more opening of the flower for maximum keeping quality at consumer level, while in the summer tighter cutting can actually give more life since the flowers naturally grow and open more rapidly after cutting during higher temperatures.

3. Distance and method involved in shipping have a bearing on the stage of cutting. For example, overnight refrigerated delivery permits cutting of more mature flowers, whereas a lengthier more variable shipping environment means closer cutting since flowers will open in transit. Flowers for local sales can be cut the most mature of all.

4. In cloth house operations it is wise to cut slightly tighter than normal if rain is expected. Not only does this reduce crop losses from breakage and spoilage due to water collection and disease, but it also tends to keep quality and supply more consistent since flowers open more rapidly after rains, causing an unplanned supply of more open, softer flowers than had been shipped in the past.

5. Regional growing environment. Southern California and Florida have sufficient sunshine during most periods of the year to permit tighter cutting than is normally practiced in Northern latitudes. Greater carbohydrate reserves in the southern-grown plants make longer opening periods possible.

Occasionally one grower can ship his product satisfactorily to a market, while a neighbor grower may have problems going to the same market, growing techniques may differ sufficiently to produce this difference, but it can also be produced by the actual stage or age of flowers at cutting time. Because of this one should check the possibility of varying his cutting practices before abandoning a variety because of complaints on arrival and keeping after arrival. The lower one-third of the stem is stripped

of Foliage to aid in bunching, packing and to prevent odors of decomposition from leaves when placed in water.

Place cut flowers in clean, room-temperature water as rapidly as possible after cutting. Wilted flowers may appear to take up water prior to packing, but frequently complaints of failure to absorb water upon receipt can be traced to the failure of tighter flowers to open non-uniformly, even though stems are in water. Standard varieties are ready to cut any time after the tight center petal swirl disappears. Normally 5-7 days is a satisfactory time period for cutting out a particular variety. If more time is required it is imperative to review all cultural techniques.

Shipping Flowers

Packing of cut flowers should be carefully studied. The most common error is over-crowding in the shipping boxes.

It should be remembered that cut flowers will continue to grow and expand in size during transit, therefore, tightly packed boxes at departure time will be very tight upon arrival.

Quite often flowers from over-packed boxes have poorer keeping quality. This reduction results from bruised and crushed flower petals. Buyers complain that they cannot use the flowers without holding them in water for an extended period to regain turgidity in the crushed flowers.

Not securely fastening the blooms in the box will cause bruising of the petals. Cleating or sewing the stems to the box is essential. Cushion the blooms by placing enough padded paper at the bottom of the corrugated box and between the layers of blooms. In order to give complete protection pompon bunches should be wrapped so that the paper extends 1 or 2 inches above the flower heads. Chrysanthemum "Saf-Pak" is very helpful in shipping standards to market. One dozen blooms are held securely in one "Saf-Pak" holder.

Long-distance shipments carry better if the cut flowers are cooled and packed dry. Reduction of the temperature is accomplished by precooling the packed cut flowers. Never ship wet flowers. Flowers cut too open do not ship well and have short shelf life periods.



A LARGE SHIPPING OPERATION

OUTDOOR CUT CHRYSANTHEMUMS

To produce a successful crop outdoors requires recognition of the limited control growers have over the fluctuations in environment, plus careful planning for the extremes in weather that can occur during the growing season.

Careful planning for the following is a must:

(1) **Drainage**—Since many crops are grown outdoors when the heaviest rainfalls occur in the shortest time adequate drainage for the prevention of flooding must be provided. Flooding can often be prevented thru proper location of planting area. Where this cannot be provided adequate pumping capacity must be part of the equipment. To provide drainage and proper aeration for the plant roots all planting beds should be raised 3-4" above the walks between each bed. These walks can often become a part of the drainage system used to prevent flooding, if the cloth house is designed with this in mind.

(2) **Low Temperature**—It is generally conceded that actively growing chrysanthemum plants can withstand temperatures of 29°F for short intervals, even with ice covering on the foliage, if care is used in preventing water loss during the warming-up period. Overhead sprinklers should be turned on to prevent such water loss as soon as it is apparent that the water will not freeze on plants and cause breakage due to ice accumulation. Water once turned on for plant protection must not be turned off until all ice is off of the plants and plant tissue is warmer than the surrounding air. This usually means watering until late morning. Black cloth will provide considerable protection but must be put on early enough to capture soil radiation that occurs at night. Large planting areas have effectively used specially designed rotating propellers to pull down and pass over plants warm air from the naturally occurring upper air inversion layer. Firing with oil burners, old tires, wood, etc., all have the problem of soot spotting which can render crops unsaleable if extensive enough. This is probably the least satisfactory method. It should be noted that not only are the established plants and open flowers affected, but the newly planted material is quite often seriously affected. Care must be taken not to overfertilize plants retarded in growth from low temperature. It is best to delay fertilizing until some new active growth is evident. Frequently pinching and lighting schedules have to be altered to the actual growth made by plants.

(3) **Improper Soil Temperature and Moisture at the Time of Fumigating and Planting**—The rate of escape consequent effectiveness of any soil fumigant is dependent on soil moisture and more particularly on soil temperature. In the past northern growers have delayed soil treatment until just prior to planting. This practice should give way to fall treatment of soil and winter black plastic cover which may be uncovered as needed for spring planting. In practice the following steps should assist in early spring planting.

(A) Prepare soil for fumigation. Add all pre planting fertilizer necessary for next years crop.

(B) Fumigate Soil—**Mc2—Vapam—Brozone or Vorlex**—may be used where weed and normal disease control are desired. Where verticillium is a problem chloropicrin is recommended.

(C) Cover soil immediately after fumigating with black polyethylene and permit cover to remain until planting time. This prevents excess moisture accumulation and permits warming of soil under the cover. It is possible to slit the polyethylene lengthwise with bed and plant thru it. This provides further weed control.

(4) **Wind Damage**—Crop losses due to wind can come from the following:

The weight of water accumulation from rains on flowers and foliage will, when accompanied by even slight winds, topple a bed of flowers so as to break stems near the flower heads. To guard against this all bed support wires should be kept as taut and as close to the flower head as possible for maximum support. Lesser crop losses from strong air movements are usually associated with water losses which may at times be responsible for petal burning, especially if humidity is very low and spraying is practiced. Adequate soil moisture is the only preventive. In extreme cases it may be necessary to apply water overhead on open flowers to prevent petal burning. All of the above conditions are less troublesome when the growing structure is covered. It is possible to grow a crop without cover, but where the top is not covered it is almost imperative that some form of wind protection be given on the sides.

Failure to properly secure black cloth and light divider cloths can often result in crop losses. A piece of loose cloth or wire can act like a scythe when flayed by the wind. In very high windstorms, more losses result from this than from most other causes, making it essential that cloths and wires be well secured prior to a predicted storm.

(5) **Control of Diseases and Insects**—Failure to have sufficient equipment to be able to cover the growing area rapidly often results in large losses. It must be remembered that it may be necessary to spray the entire growing area more than one time during any week. This often results from rains washing off previous protective spray residues. It can also be the result of climatic conditions influencing insect migration, reproductive cycles and the resistance to previously lethal chemicals. Dusting may be used as a temporary measure, but there is no substitute for the complete coverage given by adequate spraying.

(6) **Drying of Flowers Prior to Shipping**—Outdoor growing precludes that it will be necessary to cut wet flowers. A frequently overlooked necessity is adequate space to hold and dry such a harvest. Flowers packed wet will weigh considerably more and will not reach the market without some deterioration, especially if temperatures above 45°F are common during transit. Most growers prefer to cut and sling excess water out in the field. Grading and packing are done after drying, since flowers break easily and weigh more when wet. Large portable fans are commonly used to dry flowers. However, when more rapid and exact drying is preferred mechanical refrigeration is employed.

(7) **Black Cloth**—Failure to use good quality cloth will result in uneven, delayed and in extreme cases complete failure to bud. Cloth may be inexpensive initially but may ultimately be very expensive in poor crop response if it ages rapidly and permits high light penetration. New and closely woven materials often fail to pass water, causing damage to house supports or cloth when weight becomes

excessive. This can partially be prevented by spraying cloth with a wetting agent which reduces the water holding ability. Water pockets are best relieved by stroking the cloth from beneath by hand or with a broom. Delays in flowering under black cloth can also be due to excessive heat build up under cloth. This can be relieved by supporting the black cloth as high above the flowers as practical. Such supports are independent of the posts that support the bed support wires. This system has several other advantages: (A) it reduces the breakage of flowers that occurs from cloth touching plants. (B) It lengthens cloth life since no sharp posts are present to tear cloth. (C) When the area is closed it provides an area that can be fumigated with aresols. (D) the work of cloth placement and removal is more orderly and often more rapid. (E) Because of the above reasons flower quality is often improved.

Saran cloths No. 1807-1809 have been found more satisfactory for light divider cloths than black cloth for outdoor culture. While the initial cost is higher the durability and strength, plus the lessened resistance to wind, make it less costly ultimately.

(8) **Variety Selection**—The requirements of a variety for good outdoor production are so varied and severe that careful variety selection can spell the difference between success and failure; for this reason it is best to consult your Gloeckner representative for the most detailed and recent picture.

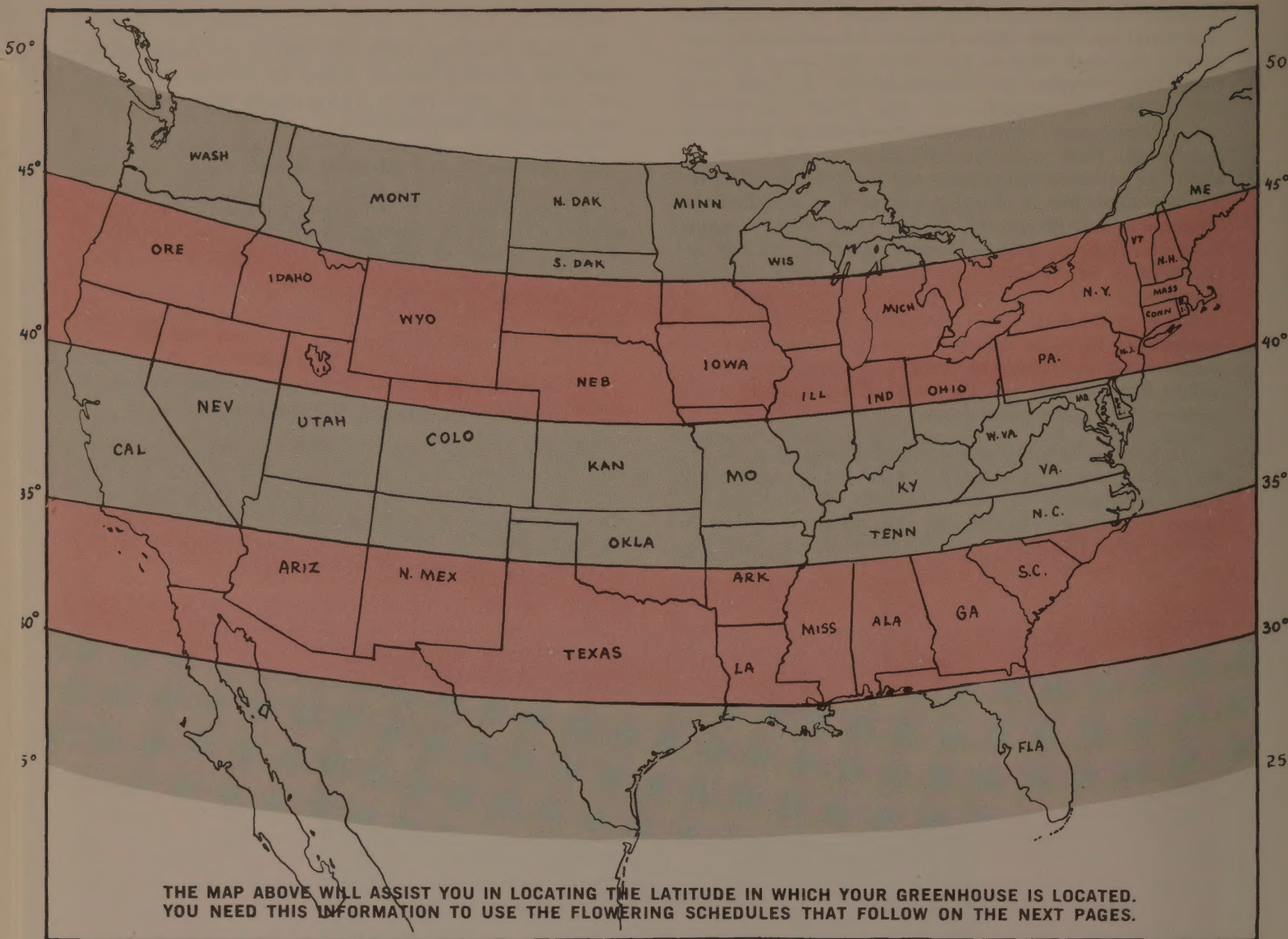
While it is possible in certain areas to grow a crop without cloth covering the following advantages should be considered:

1. Cloth can aid in Frost Protection.
2. Cloth prevents rapid fluctuations in temperature, wind and humidity thereby giving the grower more control over his environment which results in a more even and predictable crop response.
3. Color depth and retention is superior.
4. Insect control problems can be lessened since cover present a barrier to passage. This is especially true where the cloth is sprayed periodically with insecticides.
5. Damage from rain beating down on flowers is lessened since cloth breaks rain into fine mist as opposed to driving natural large droplets.
6. The amounts of fertilizer and spray materials used are often reduced lowering growing cost.

Tobacco or aster cloth is inexpensive, but will last only one year. Woven saran shade fabric has proved best for crop results, and the most economical in the long run. The saran should not cast more than 36° calculated shade or actual shade of 30%. Consult your Gloeckner representative for ordering and sewing details.



SARAN COVERED CROPS



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YEAR-ROUND LIGHTING AND SHADING SCHEDULE

RESPONSE GROUP	SHADING TO STOP IN FALL	LIGHTING TO START IN FALL	SHADING TO START IN SPRING	LIGHTING TO STOP IN SPRING
7 WEEK	AUG. 19	JULY 8	APR. 8	MAY 27
8 WEEK	AUG. 26	JULY 15	APR. 1	MAY 20
9 WEEK	SEPT. 2	JULY 22	MAR. 25	MAY 13
10 WEEK	SEPT. 9	JULY 29	MAR. 18	MAY 6
11 WEEK	SEPT. 16	AUG. 5	MAR. 11	APR. 29
12 WEEK	SEPT. 23	AUG. 12	MAR. 4	APR. 22
13 WEEK	SEPT. 30	AUG. 19	FEB. 25	APR. 15
14 WEEK	OCT. 7	AUG. 26	FEB. 18	APR. 8

Basic research of Garner and Allard of the U.S.D.A. in 1920 established the fact that length of day affected the time of flowering and growth of plants. Practical application of this fact to year-round chrysanthemum culture was developed chiefly by Alex Laurie, Gus Poesch, Kenneth Post, and Yoder Bros. Inc.

The basis for year-round or controlled flowering of chrysanthemum rests on the fact that the chrysanthemum plant will develop flower buds only under a continuous dark period of more than 10½ hours. Shorter periods do not prevent growth of the chrysanthemum plant but do prevent development of the flower bud. In year-round flowering the length of the days is adjusted either by artificial illumination or by the use of Black sateen cloth, to produce the particular growth response desired.

All varieties are classified according to their response; more particularly to the length of time required for flowering when exposed to the correct continuous dark period. This is called "Response Group." For example a 10 week response variety requires 10 weeks to flower after the correct continuous dark period has been started.

Varieties are sometimes listed under normal Flowering Date. This classification is based on the date the variety normally flowers in the 40-45 degree latitude. Flowering in this case is the result of the naturally occurring long nights as fall and winter approach, hence the term, "Natural Flowering Date." It is simply a guide from which to calculate the flowering date in other latitudes.

Lighting

Artificial illumination is used to provide sufficient stem length during periods of the year when the natural darkness is long enough to start bud initiation. To prevent budding the dark period is then reduced to no more than 7 continuous hours by lighting the plants three to four hours each night, starting no earlier than 10:00 P.M. The light intensity must not be less than 7 foot-candles when measured at plant tip on most varieties and no less than 9 foot-candles when used on seven and eight week response varieties.

To achieve the above the following rules have been developed:

(A) 1¼ watts of light per square foot of growing area including walk space are required.

(B) On single 42 to 48 inch benches use 60 watt lamps, with reflectors, spaced 4 ft. apart, 2-3 ft. above the tops of the plants.

(C) For two adjacent benches 42 to 48 inches wide, use one line of 100 watt lamps with reflectors, spaced 6 feet apart and 2 to 3 feet above the tops of the plants.

(D) For best response do not start lighting before 10:00 P.M.

(E) Light for 3 hours during the months of August, September, October, March, April and May.

(F) Light for four hours during the months of November, December, January and February.

The above is meant to be a guide and may be modified according to Latitude. Consult the local Sunrise and Sun-

set tables for the hours of continuous darkness and modify as needed.

Intermittent Lighting

The effect of relatively short alternating periods of light and darkness on reproductive activity of plants was noted by research workers as early as 1927. Kenneth Post, Cornell University, made recommendations for commercial use of intermittent light in 1952, but the principle lay dormant until recent work by the University of Conn. and the U.S.D.A. at Beltsville, Md. From this most recent research have come workable recommendations that make it imperative growers examine their procedure for supplying artificial illumination to crops.

Advantage of Intermittent Lighting

Compared with the continuous lighting system, only a fraction of the normal electrical input is necessary with intermittent lighting. By the use of programed area flashing, only a portion of the total area being illuminated need be lighted at one time. Lighting smaller areas for short intervals greatly reduces electrical consumption when the load is normally the greatest and can appreciably reduce the "demand charges." In addition to these immediate savings, installation and maintenance cost may be reduced and the life of the lamps can be extended, since, generally frequency and flashing have no commercial significance in terms of lamp life. Growers using intermittent light to date report significant savings in current consumption. It should be possible for a year-round chrysanthemum operation to pay for the necessary new equipment and realize some savings in the first year of operation through reduction of light cost by at least two-thirds. Theoretical savings can amount to more than two-thirds.

Research workers have shown that it is necessary to calculate lighting for crop responses in the forms of duration and intensity. The most common problem encountered to date with intermittent lighting has been crown budding, resulting, in most cases, from intensity being below the required minimum. It should be noted that no intermittent lighting installation is complete until intensity, as measured by a foot candle light meter, has been checked. In actual practice determination of intensity now being used should be checked before the decision to change to intermittent lighting is considered. Remember intermittent lighting actually reduces the amount of energy that falls on the plant; therefore, it can never improve a marginal lighting situation. Lighting installations adequate years ago may now be less than adequate because of insulation aging, extension of system beyond original plan, and other causes. That is why it must be checked. It should be noted that low intensity readings do not necessarily mean an intermittent lighting system cannot be installed. Often a simple change in wiring or an increase in the number of bulbs will accomplish the desired intensity and still not raise the cost of installation appreciably.

Growers who are planning expansion of their present growing area or a new installation may find it beneficial to investigate the economies of commencing with this method of lighting.

Requirements

In experiments on chrysanthemums it has been shown that light intensity and duration can be interchanged providing the dark cycle period is not more than 30 minutes. With 20 foot candles, vegetative growth will occur if lights are on only 5% of the 30 minutes meaning 28.5 minutes darkness followed by 1.5 minutes of light. However, most commercial installations aim at projecting 5-10 foot candles of light on plant tops when measured at the darkest point in the growing area. The additional cost of raising the whole area to 10 foot candles is usually insignificant compared to the savings intermittent lighting can give; therefore to be safe one should aim to have no less than 7-10 foot candles of light overall on plant tops. With less than 5 foot candles in the darkest area of growing, intermittent light should not be attempted. With 10 foot candles lighting should be for 20% of the 30 minute dark cycle: that is 24 minutes of dark followed by 6 minutes of light. Length of nightly lighting period need not be varied from the conventional periods. Doubling the length of intermittent lighting when intensity is below the required is not satisfactory. Below minimal requirement is equal to no light in plant growth response.

Rules

1. Check light intensity of growing area. Best to have 7-10 foot candles over all, but no less than 5 foot candles when measured at darkest area.
2. Do not shorten the nightly number of hours plants are lighted.
3. Do not light intermittently 7 and 8-week response varieties. More investigation is necessary before recommendations for these crops can be given.
4. With 7-10 foot candles on top of plants and no less than 5 foot candles at the darkest area, light 20% of the 30 minute cycle. Higher intensities can use a shorter percentage of light time. The percentage of light time may be achieved by various schedules and equipment.

Equipment

Two programers for flash lighting are available. Fundamentally the principal is the same for both. A 30 minute cycle is used with one contact being made every 30 minutes for a period of 6 minutes. The programers have 5 circuits, each rated at an incandescent light capacity of 3000 watts. Heavy duty municipal lighting relays are used. Your present lighting clock can be used to stop and start the programer. Description of programers under "Accessories."

Shading

During those periods of the year when the natural continuous dark period is not long enough for budding it is necessary to shade the plants **after** sufficient stem length has occurred. To produce the desired dark period, a durable Black Cloth (Sateen) which will reduce the light intensity to 2 foot candles or less, when applied at 7:00 P.M., is used for this purpose. The cloth should be applied at 7:00 P.M. and removed at 7:00 A.M. Shading when temperatures are 85° F or above have been found to delay flowering. Shading should be delayed until air temperature is below 85 degrees if possible, but shade must be applied for 12 continuous hours once it has begun. The cloth must be placed on the plants every night. The only addition to this rule is in cloth house production, where rain storms may prevent cloth application. Continue covering each evening on pompons until the latest buds show color and most of the flowers are well developed. For large flowering varieties, shading may be discontinued after all flower buds have attained the diameter of one half inch. Change position of folded cloth from day to day to prevent weak growth, due to the shadow falling on the same plants.

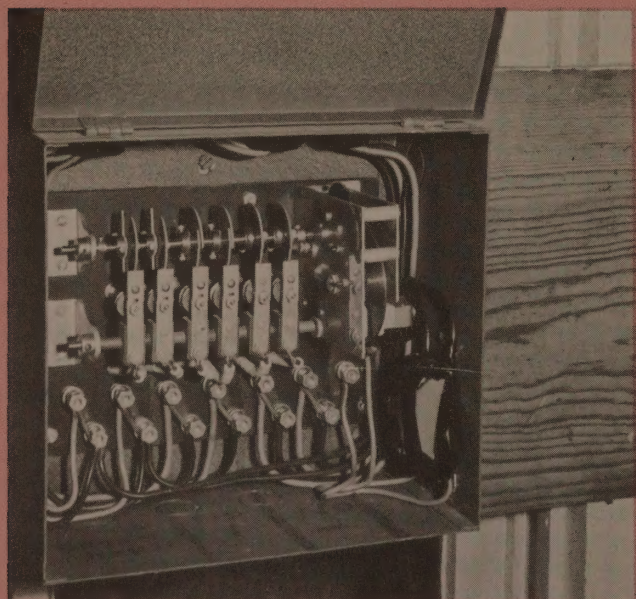
Excessive high temperatures prohibit the bud development, and during seasons of 90 degree afternoon temperatures, it is suggested that the black cloth be raised after twilight and lowered again in the morning before daylight. This cooler temperature hastens the development of the buds. Air conditioning greenhouses has made it possible to grow chrysanthemums in locations where natural high temperatures prohibit the development of this crop. **Do not skip shading.** For every day skipped, an additional day's retardation can be expected. This is especially critical during the initiation and early bud development stages.

BLACK CLOTH: This is an expensive part of producing a mum crop. In the selection of a cloth, it does not pay to shop for the cheapest grade, if for a few pennies more, a cloth can be had that will give an additional year or two in service. On the other side, be careful in evaluating a very heavy expensive cloth, thinking that it will last a long time, because some of these materials are so tightly woven and "dressed", that water will not pass through them when used outside, and a good many growers have had a crop ruined by the water pocketing and collapsing on the finished flowers.

The manufacturers say there is too strong a tendency to order very large pieces. These are difficult to handle and the strains on the cloth in pulling it, shorten the life. Better to order a series of smaller pieces.

Take advantage of the services offered in the sewing of hems for wires or rope. Grommets are also furnished at a modest cost that makes for easier handling and sliding particularly of drop cloths between crops.

General recommendations call for cloth 4 feet above a bench. This is not enough in a poorly ventilated hot house. It is good economy to run the cloth a little higher to avoid heat delays, and petal burn.



This six circuit flasher will handle 6 benches with 30 lamps 100 Watts each. Flash is 6 seconds out of 1 minute for regular lighting period.



**NEAT BLACK CLOTH METHOD
NOTE WOODEN RUNNERS**

Try using wooden wheels on your posts to facilitate movement of the cloth over points where it might get stuck. Outside, where wind is a problem, ropes are most frequently used to hold the cloth down. May we suggest that you try using a child's marble under the cloth, around which is tied a rope and a section of innertube. The tube is pulled under a heavy wire running at ground level, and a squeeze fastener clips into a loop at the marble. When the wind blows, the innertube stretches and brings the cloth safely back into position.

Most attempts at using black plastic for shade cloth have ended in failure because of high temperature problems and inability to hold the plastic down in even moderate winds. Good Black Sateen cloth is still the most satisfactory material.

We are often asked how long cloth should last. The answer is it depends upon your care. Mildew and mold takes a heavy toll of cloth pushed back when wet. During the winter time, rats love to eat cloth thrown on a loft or closet. Where rats are a problem, suspend the cloth from ropes. Be sure to ventilate before using cloth stored with moth crystals.

Temperature Control

For inter-connected units or crops at different stages of development the most efficient and effective temperature recommendations we can make are **cool 60 degree crops**. The house temperature is run at a straight 60 degree level night and day, cloudy or sunny. This is the lowest, safest minimum. **It is the night temperature that counts.** Eliminating fluctuation promotes steady, gradual growth. Keeping day temperatures down encourages more ventilation with corresponding reduction in relative humidity. This promotes stronger, heavier stems. On very bright days temperatures will frequently go higher but this should be due to radiant heat from the sun rather than convective greenhouse heat.

TEMPERATURE CANNOT FORCE CHRYSANTHEMUMS: The flowering of the Chrysanthemum is controlled by day length at optimum temperature at time of setting bud. Frequently customers ask whether they can force in a crop that is late by raising the temperature.

For most varieties, boosting the average day and night temperatures to levels much above 60° will actually delay the opening of the flower rather than hasten it.

Further, in connection with the finishing temperature, the blackening of the centers of the flowers, and the bleaching of the centers of others, is related to too high temperatures either day or night or both when the flower is opening. At the higher temperature, under conditions of lower light intensity that exists in the Fall or Winter, the plant is actually consuming more food than the leaves are manufacturing. This causes the flowers to be smaller and the centers to suffer. By lowering the finishing temperatures flowering may be slightly delayed, but quality is improved.

Temperature reductions with fan and wet pad can be achieved. However, increased experience with wet pad cooling in some areas of normally moderate to high humidity have shown the air movement alone to be more beneficial to the prevention of foliage and flower diseases than when used in combination with the wet pad. Some growers reduce the wet pad usage as the crop matures to assist in lowering the humidity and to produce a harder flower, less susceptible to sun scald. Where no fan and pad system is present, and where air movement and consequent more uniform heat and humidity control is desired, growers are installing Nivola Dutch Mill circulating fans. They report less petal burn and Botrytis, more uniform humidity and air temperature and an actual saving in heating cost.

CRITICAL TEMPERATURE PERIODS: There are two periods in every growing cycle where temperature is of uppermost importance. The first occurs the initial two weeks after planting, and the second in the two weeks after the start of the short day. In both instances the temperatures should be 62° to 65°, and for the other periods a cool 60° will produce the best crop. If possible, 54-56°, condition during the final 3 to 4 weeks will give superior results, but this cannot be done if other crops are in the same house that require the higher temperatures.

At the time short days start, a gradual tapering off in water and feed is essential for some hardening. This will reduce vegetativeness and will bring about a more reproductive and responsive plant. Leaf color changes from a light green to a dark green. Stems become firm and woody. When the buds are firmly set and start to swell, resume normal feeding and watering practices.

OVERSTIMULATION: During the summer months when growing conditions are ideal, fast and luxuriant growth can cause disorders. When the plants are fed too heavily with Nitrogen, the lush growth results in plant cells actually bursting from an inner turgor pressure. Open cracks appear in the stems that look like slashes, made by a razor blade. Oregon shows up with horizontal cracks about an inch below the growing point, and they may break off at the slightest touch. Shasta exhibits a horizontal opening.

Fast growing conditions also can cause a flecking or chlorosis similar to viruses. Varieties most frequently showing this are the Ribbons, Mermaid, Chips, Pennant and Personality.

Many vigorous varieties are more susceptible to bacterial wilt when overstimulated by ammonium and urea bearing fertilizers.

Control: Reduce moisture and fertilizer until a more normal and harder rate of growth is attained.

Overcropping: A descriptive term associated with varieties that produce such an abundance of buds in the spray that:

- (1) the size of any one bud will be reduced below the accepted market size.
- (2) the ranges of bud maturities within any one spray can often be so great as to cause difficulty in deciding when to cut.
- (3) flowering response may be delayed causing loss of quality and color. To prevent this; it is necessary to thin out the spray, disbudding and dispraying to a degree that will permit more normal flowering. The most practical method of thinning is to remove all buds and lateral sprays that are in the more juvenile stages of development.

Interrupted Lighting for Winter Standards

When flowering December thru March crops of the standard varieties Indianapolis, Queen's and Mefo's, the use of interrupted lighting has been tested and is recommended as a means of increasing petallage. This materially improves the appearance of the flower reducing the effect of decreased petallage and quilling known to be associated with abrupt shade during the short days of the winter period.

The essential requirements are:

1. Units planted to only the above mentioned varieties. The procedure has not been thoroughly tested on spray varieties or other standard varieties.
2. Accurate control of temperature. A 60° minimum night at all positions within the unit plus correspondingly higher day temperatures. Cloudy days were run at the 60° minimum. Bright days were between 65°-70°.
3. A rigid adherence to scheduled timing recommendations with interruption.
4. No extreme temperature reduction at or near the finish of the crop. Low temperature is known to be partly responsible for an increase of quilling in the Indianapolis varieties. A minimum of 55° is satisfactory only after buds show some color.
5. The method recommended is as follows:

For any given crop to be flowered during the **December through March** period determine from the schedule the date lights are stopped. Count back twelve (12) days and on this date start and maintain nine (9) continuous short days of no lights. At the end of this nine (9) short day period run twelve (12) continuous days of lights on. Then turn lights out and maintain normal short days.

Thus the total number of long days as called for by the schedule remains the same. This second long day period immediately following the first short day period of nine (9) days serves to slow down the early bud development stage resulting in a petallage increase of approximately 50%.

Dates to illustrate: For flowering Indianapolis White (10 week) for December 9 the schedule calls for October 1 lights out. Counting back twelve (12) days gives September 17. Therefore run short days from September 17 to and including September 26 (9 continuous short days). Starting September 27, run twelve (12) long days to and including October 8. On October 9 start the final and continuous short day period. This is the nine (9) short day—twelve (12) long day formula for interrupted lighting.

Selection and Varieties

The careful selection of varieties in year-round flowering is very important. An intimate knowledge of varieties will eliminate the pitfalls associated with this crop. Knowing how to select varieties on the basis of response groups is equally as important as selecting varieties that will respond out of season.

In latitudes where seasons, temperatures and light conditions are variable, it is to any grower's advantage that he grow only those varieties that will provide the highest yields and best quality for each period of the year.

The South is of course more fortunate in that light duration and intensity there fluctuates less than is experienced in the North, and even though only three or four response groups are used during a 52-week period, the need for meticulous varietal planning is just as important as it is for any one period in the North.

VARIETY: Growers who want something different can frequently stir up new interest with a different style of flowers. Varieties recommended as standards can be grown as pompons and vice versa. Retail growers particularly should try this switch. Here are some standards that shape up well when grown as pomps:

Luyona	Dunlope's White Spider	Harvest Golden
Duchess	Nightingale	Yellow Knight
Bunbu	Yellow Nightingale	Maple Leaves
John Baumann		

The "Spray" varieties that make good disbuds are legion, but the better ones are:

WHITE

Silver Bow	Lightning	Long Island Beauty
White Doty	Viscount	Belray
Iceberg	Chalk Cliff	White Valencia
Ermine	John Baumann	White Enchantress
Skyline		

YELLOW

Yellow Bow	Luxury	Coronation
Golden Herald	Yel. L. I. Beauty	Yel. Enchantress
Yellow Iceberg	Yellow Viscount	Shane
#2 Yellow Iceberg	Yellow Valencia	

BRONZE & RED

Bronze Masterpiece	Tan Vedova	Olnura
Daybreak	Bronze Vedova	Apricot Valencia
Copperhead	Valentine	

PINK

Lillian Doty	Venoya	Dark Valencia
Southdown Pink	Beautiful Lady	Enchantress
Vedova	Valencia	Splendor
Masterpiece	Ambrosia	

Then there are "Pot" varieties that produce fine small standards or fast disbuds. The best are:

All Princess Anne Varieties

Red Star	Starburst	Yellow Star
Woking Scarlet	Commander	Heather
Pink DeLuxe	Splurge	Achievement
Monty	Bronze DeLuxe	Blue Ribbon
Valentine	Calverts Gold	Dark Ribbon

Many other examples can be cited, and we can recommend that experimenting be done in a small way to uncover varieties and types best suited to your trade.

A Partial List of . . .

1. Best Early Varieties for Natural Season Outdoor Cut Flowers

WHITE

CANDLEGLOW
HORIZON
ECHO

YELLOW

POLARIS
BRIGHT FORECAST
YELLOW CALUMET

BRONZE and RED

HUNTSMAN
CALUMET
RAJAH

PINK

ENTERPRISE
ACCOLADE

2. Best Varieties for High Summer Temperatures

SPRAYS

WHITE

CLOUDBANK—9 wk.
#2 WHITECHIP—9 wk.
HURRICANE—10 wk.
ICEBERG—10 wk.
BONNIE JEAN—10 wk.
DAWN STAR—10 wk.
CORONADO—10 wk.
#2 SHASTA—10 wk.
WHITE SANDS—10 wk.

YELLOW

LUXURY—9 wk.
SUNBEAM—9 wk.
YELLOWCHIP—9 wk.
YELLOW BEAUREGARD—10 wk.
#2 YELLOW ICEBERG—10 wk.
YELLOW BONNIE JEAN—10 wk.
IMPERIAL—10 wk.

PINK

BLUECHIP—9 wk.
DARKCHIP—9 wk.
VALIANT—10 wk.
#2 PENNANT—10 wk.
EXCELLO—10 wk.

BRONZE and RED

BUCKSKIN—9 wk.
COPPERCHIP—9 wk.
DILLON BEAUREGARD—10 wk.

STANDARDS

WHITE

WHITE PINK CHIEF—8 wk.
DONLOPE'S
WHITE SPIDER—9 wk.
GIANT BETSY ROSS—10 wk.
TOKYO—10 wk.

YELLOW

LUYONA—9 wk.
GOOD NEWS—9 wk.
GOLDEN BOY—9 wk.
RAINIER—10 wk.
YELLOW KNIGHT—10 wk.

BRONZE and RED

SYMBOL—9 wk.
FRED YULE—9 wk.
MAPLE LEAVES—late 10 wk.

PINK

BUNBU—9 wk.
BLUEBIRD—10 wk.
MISS AMERICA—10 wk.

3. Best Cloth House Varieties

SPRAYS

WHITE

SILVERTONE—9 wk.
WHITE KEEPSAKE—9 wk.
HURRICANE—10 wk.
PING PONG—10 wk.
WHITETOP—10 wk.
ICEBERG—10 wk.
DAWN STAR—10 wk.

BRONZE and RED

COPPERCHIP—9 wk.
TANFASTIC—9 wk.
TUNEFUL—10 wk.
RED JETFIRE—10 wk.
DILLON BEAUREGARD—10 wk.
BRONZE DELIGHT—10 wk.

YELLOW

LUXURY—9 wk.
SUNBEAM—9 wk.
YELLOWCHIP—9 wk.
GOLDTOP—10 wk.
YELLOW BEAUREGARD—10 wk.
YELLOW ICEBERG—10 wk.
#2 YELLOW ICEBERG—10 wk.
IMPERIAL—10 wk.
HEYDAY—10 wk.
TOPAZ—10 wk.

PINK

AMBROSIA—9 wk.
BLUECHIP—9 wk.
CHERRYCHIP—9 wk.
VALIANT—10 wk.
DELIGHT—10 wk.
PORTRAIT—10 wk.
EXCELLO—10 wk.
CHEERFUL—10 wk.
DELMARVEL—10 wk.

STANDARDS

WHITE

WH. PINK CHIEF—9 wk.
GT. BETSY ROSS—10 wk.

BRONZE and RED

CHAMBRIER—9 wk.
DETROIT NEWS—9 wk.

YELLOW

EXPLORER—10 wk.
GOOD NEWS—9 wk.

PINK

VANGUARD—10 wk.
MISS AMERICA—10 wk.
BLUE BIRD—10 wk.

4. Varieties Most Tolerant of Low Temperatures

During the Spring, Summer and Fall flowering periods when the possibility of marginally low temperatures exist due to difficulty in maintaining a 60° minimum temperature, the following varieties can be recommended—with reservation of a 56° minimum average temperature.

BEAUREGARDS
PORTRAITS
SHASTAS

CHIPS
DAWN STAR
DELIGHTS

HEYDAY
IGLOOS

During the late Fall, Winter and early Spring flowering periods when growers find it difficult to maintain a 60° minimum, these varieties are most foolproof. Average minimum temperature 56°.

ICECAP
ELEGANCE
GOLDEN ELEGANCE
SILVERSMITH
ICEBREAKER

SNOWCREST
VIBRANT
BEAU BRUMMEL
DELMARVEL
THELMA

JUBILATIONS
STARFLITE
LOLLIPOP
REBEL

CARBON DIOXIDE INJECTION

Plant physiologists tell us there are four main factors controlling plant growth of photosynthesis. These are: light, temperature, water and carbon dioxide (CO_2). If any of these factors are not within the range of suitability for a plant, the rate of photosynthesis is reduced.

Normally, air contains 250 to 330 parts per million of carbon dioxide. Tests have proved that the concentration of CO_2 inside a greenhouse is invariably less than in the outside air. Further, tests have shown that by increasing the CO_2 in the atmosphere of a greenhouse up to specific toxic limits of about 10,000 p.p.m., accelerated formation of carbohydrates occurs.

We are thereby offered the tantalizing possibility of a better crop if more CO_2 can be supplied. But CO_2 "fertilization" is not new. It has been extensively employed as far back as 1870 in Germany by means of charcoal burners, in greenhouses.

Today, with improved methods of getting the carbon dioxide into the air around the plant and using modern sources of CO_2 such as dry ice, some of the difficulties of the problem have been resolved. Most greenhouses now use solid dry ice as their CO_2 source, but more elaborate installations are using liquid material in large tanks. Blocks of dry ice or sliced pieces are placed in steel pressure tanks (converters), and as the dry ice turns into a gas, it creates great pressure. Flowmeters, solenoid valves, and time clocks can be so arranged to meter a predetermined amount of the gas into a greenhouse. The gas is conducted throughout the greenhouse by $\frac{1}{4}$ " vinyl tubing with minute holes punched every 12 feet. One tube is used for every 8 to 10 feet of greenhouse by width. CO_2 diffuses with the greenhouses atmosphere very readily, so mixing is no problem. Some installations inject CO_2 in the center of the air stream of circulating fans such as the Dutch Mill.

Carbon Dioxide is injected during the daylight hours only. During cloudy days 2 cubic feet of gas per hour per 10,000 cubic feet of greenhouse will maintain 300-500 p.p.m. On bright days, 3 cubic feet of gas per hour per 10,000 cubic feet are required.

One pound of dry ice will yield 10 cubic feet of carbon dioxide gas. The cost of the dry ice is about $4\frac{1}{2}$ ¢ per lb. and the equipment needed will vary in relation to the degree of automation, but such equipment if considered reasonable to install. Liquid CO_2 is primarily for large installations only, with the cost averaging 5¢ per lb. The storage and gas converter is supplied at no charge and the only expense for equipment, therefore pertains to valves, piping, clocks, etc. Estimated cost is about 4¢ per square foot of bench space per year.

There is an indication that the cost of the carbon dioxide would be offset by savings in heat lost through ventilating during the winter months.

At this time we know pot mums grow stronger with more breaks and better quality. Cut Chrysanthemums respond to added CO_2 by producing heavier stems and slightly larger flower heads. In general, the advantages of CO_2 with other crops are as follows:

CARNATIONS: About a 30% increase in production, with additional benefits of earlier comeback and better substance in the flowers.

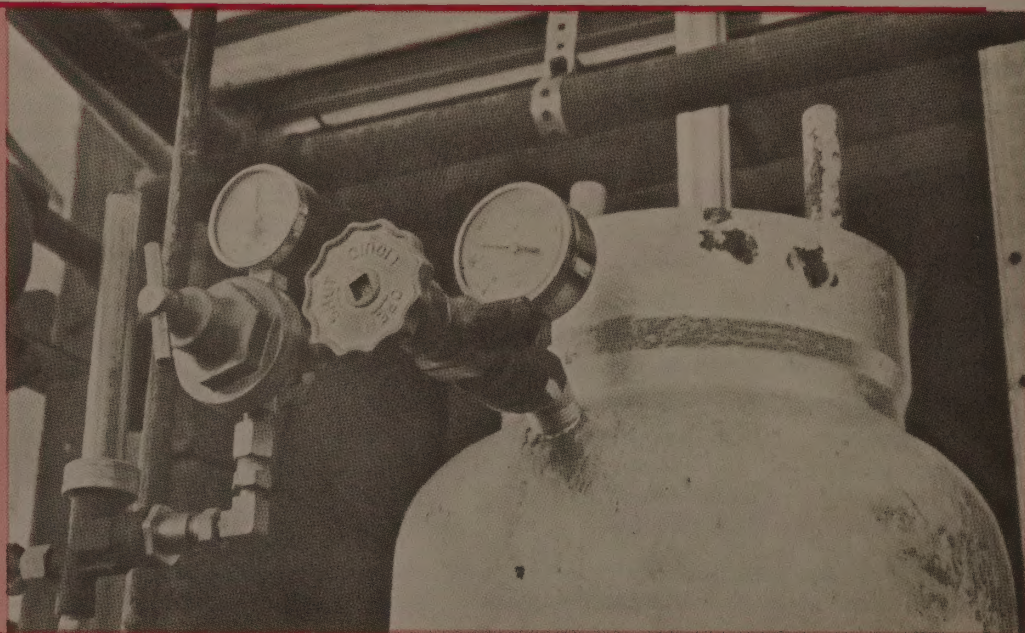
ROSES: Consistently higher yields and improved quality over untreated plants.

TOMATOES: A 29% increase in production with more uniform ripening and firmness.

LETTUCE: A 40% crop increase and better quality.

Your Gloeckner salesman will keep you posted on this promising development.

Equipment needed for injecting CO_2 into greenhouses is simple and reasonable in cost.



APHIDS

Importance: They are commonly found in colonies on the shoots of new growth, but they also occur under leaves, on stems and roots. They injure the plants by sucking the juices with a long beak, and the new leaves are curled and crinkled by their feeding.

Aphids also excrete a honeydew which may be produced in such quantities as to form a glistening coating on the leaves. This honeydew attracts ants and promotes the growth of the black smut fungus.

Aphids also serve as the agents for transmission of a large number of plant virus diseases. Certain varieties of chrysanthemums are more susceptible to attack than others.

A single female may produce from 60 to 100 young before dying at an age of 20 to 30 days. The young may mature in from 6 to 7 days after birth.

Control: Nicofume fumigation is an easy method of controlling the black aphid but will do very little to control the green or straw-colored aphids. **Demeton (Systox)** or **Ompa** can be applied as a soil drench 10 days after benching. 1 pint of the 23% **Systox** per 1,000 sq. ft.

Thiodan, Meta-Systox R, Diazinon, Lindane or **Parathion** are much more effective on the very resistant green or straw-colored aphids than **Malathion**. **Vaportone** is also effective when used at higher concentrations.

Dimethoate (Cygon) causes injury to the foliage of the chrysanthemums.

CHRYSANTHEMUM LEAF MINER

Importance: The maggots of leaf miners are found commonly tunneling within the leaves and stems of the plants. The foliage is rendered unsightly by the larval mines and by the feeding punctures of adults. In the case of heavy infestations leaf drop follows. They may do considerable harm to the crop, but are easily held in check.

Appearance: The larvae are soft, white maggots, with black mouth hooks. They are about 1/10 inch long when mature. Their tunnels are long and winding or else blotch-like. The adult flies are stocky, about 1/12 inch long, and are blackish, sometimes marked with yellow. They are very active.

Control: **Diazinon 25W** at one pound per hundred gallons of water is the best control. **Parathion, Lindane** or **Malathion** as an aerosol or spray have been reported to control this insect. On cloth house crops the systemic, **Thimet**, has given excellent control.

Caution: Some varieties of Chrysanthemums may be injured with **Diazinon**.

CHRYSANTHEMUM MIDGE

Importance: The chrysanthemum gall midge is a common and persistent pest, although seldom seen today, can be one of the most serious pests with which the grower has to deal. Under optimum conditions, a little over a month is required to complete the life cycle from the egg to the adult.

Appearance: The larvae are small, fleshy maggots, without a head, and often yellowish or orange in color. They are commonly about 1/12 inch in length. The adults are very delicate midges, reddish in color, less than 1/12 inch in length.

Development: Eggs are laid on the new growth. The galls develop around the maggots as they feed. The adult midges live only a day or so.

Control: **Lindane** is effective against young and adults. **Parathion** aerosols effective, but require frequent applications.

DDT effective against adults, repeated applications necessary.



APHIDS



CHRYSANTHEMUM MIDGE DAMAGE

CORN EAR WORM

Importance: It is very destructive to the opening buds, for it feeds on their petals and other parts, deforming, if not entirely ruining the flowers. Young plants are often killed overnight. The foliage may be eaten so extensively that they are ruined.

Appearance: The caterpillar is light green to dark brown with light and dark longitudinal stripes. It is a common vegetable pest which occasionally becomes established in greenhouses.

Control: If the attacked plants are blooming, spraying is out of the question, but thorough treatment with a 3 or 5% **DDT** dust is recommended. After they have worked their way into the buds and are found to be feeding on the open flowers, hand-picking is the only remedy. Spraying the plants with **DDT 50W** will control them before the color shows. **Parathion** fumigation will also keep them under control. Soil application of **Chlordane** or **Dieldrin** before planting may help on field-grown chrysanthemums.

GREENHOUSE LEAF TYER

Importance: The leaf tyers belong to a group of caterpillars which are often important feeders on plants. Only one species, however, is found ordinarily in greenhouses. It gets its name from its habit of spinning light webs enclosing 2 or more leaves or tying together the parts of a single leaf. This caterpillar is very active, and when disturbed, will wriggle off the leaf, often backwards, lowering itself on a silk-like strand.

Appearance: The caterpillars are pale in color, about $\frac{3}{4}$ inch long when grown. They are generally found within leaves which are folded over or tied together for protection.

The moths are gray-brownish in color, about $\frac{1}{2}$ inch long when at rest. The wings are held along the sides to give a triangular appearance.

Control: The best control is **Sevin** as a spray or dust. Spraying with **Lindane** or **Endrin** are effective. Regular fumigations with **Parathion** will keep the leaf tyer under control.

CUTWORMS

Importance: Heavy infestations may destroy up to $\frac{1}{2}$ the total crop. They are most active at night, and usually spend the day coiled up just under the surface of the soil at the base of the plant.

Appearance: Different species of cutworms are found throughout the United States and Canada. All have different colors and markings, but most are fleshy, soft-bodied worms, about $1\frac{1}{2}$ " to $1\frac{3}{4}$ " long. The four major types of cutworms are listed below.

Climbing Cutworms—climb stems of plants, eat buds and leaves.

Army Cutworms—form "armies" that consume all vegetation in one area, then migrate.

Solitary, Surface Cutworms—attack plants just above or below soil surface.

Subterranean Cutworms—remain in soil, feed on roots and underground parts of stems.

Control: Those cutworms that feed on the foliage can best be controlled by spray or dust of **Sevin** or **DDT**. Wet spraying with **Endrin** is often effective. **Parathion** as a spray is a good control measure.

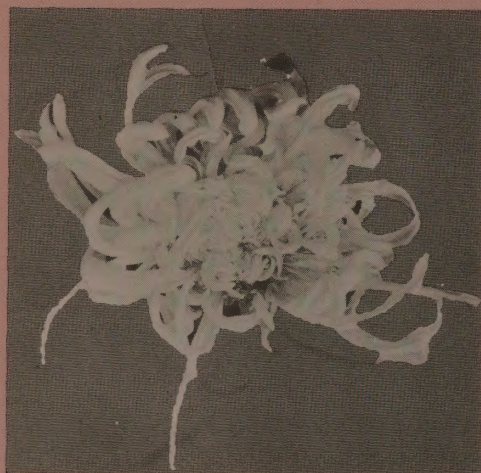
Heptaclor or **Dieldrin** will control those in the soil.

EARWIGS

Importance: Earwigs are usually scavengers, feeding on decaying plant material or on animal matter both dead and alive. One species, however, is a nuisance because it also chews all parts of chrysanthemum plants.

Appearance: Earwigs are brownish, slender, and medium-sized, about $\frac{1}{2}$ to $\frac{3}{4}$ inch long. They possess a conspicuous pair of pincers at the back end. Wing covers, when present, are short and leathery.

Control: **DDT 50%** wettable sprays; **Parathion**, **Lindane**, **Dieldrin** are effective. Practice sanitation. Earwigs hide during the day-light hours under trash, boards, etc. where it is damp.



CORN EAR WORM DAMAGE



LEAF TYER



CUTWORM

Importance: Grasshoppers are destructive feeders and will chew all parts of the chrysanthemum plant causing extensive damage.

Control: **Dieldrin 50%** 2-4 ounces to 100 gal. of water can be used to spray weeds and adjacent field areas.

Heptaclor also is excellent as area spray.

MEALYBUGS

Importance: They injure plants by sucking the sap with their needle-like mouthparts. The masses of wax from their bodies and their cottony egg sacs or cocoons render the plants unsightly. The honeydew they excrete attracts ants and serves as a medium of growth for sooty mold, making the flowers or plants even more unsalable.

Appearance: Mealybugs are soft-bodied insects which are more or less covered with a whitish or yellowish, powdery wax.

Control: **Parathion** or **Dithio** are the most effective measures. Repeated applications are necessary.

MITES

Importance: The mites comprise a small group which contains a few serious pests of ornamental plants. Growing tips of plants and young leaflets are characteristically deformed as a result of their feeding. The presence of these tiny mites in a greenhouse is seldom detected until a severe infestation has developed.

Cyclamen mite and broad mite are often found on the same plants at the same time. Broad mite can pass through a complete generation in 4 to 5 days at 70 to 80 degrees, while the cyclamen mite will take 4 to 5 times longer.

Appearance: Adult mites are elliptical in shape, more or less flattened. They are not over 1/100 inch in length. The immature stages are white. It is by the characteristic damage that the presence of these mites is usually suspected.

Injury: Infested leaves become deformed, curl from the outside inward, and wrinkle so that pockets and pit-like depressions are formed. When the infestation is severe the mites collect about the buds causing them to blight. Oftentimes white varieties will show occasional red petals.

Control: **Endrin** at 1-400 with **DuPont Spreader Sticker** 1-2000 gives excellent control. **Kelthane** also is effective. **Systox** used as a soil drench has been found effective in mite control. **Thiodan** is also effective.

SOWBUGS

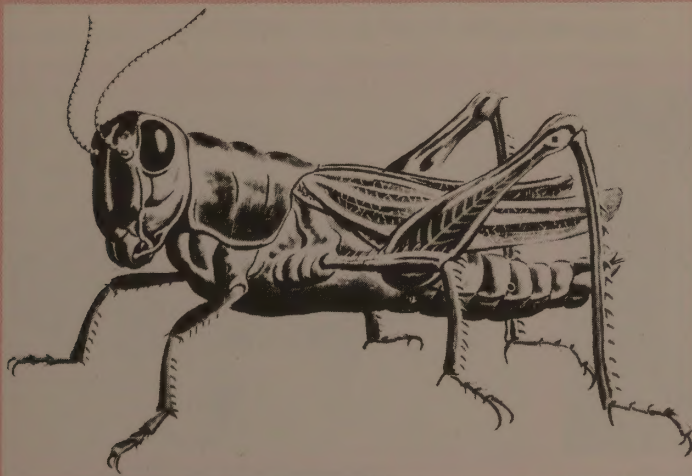
Importance: Sowbugs are common greenhouse inhabitants which usually feed on decaying organic material. Sowbugs often become so plentiful in the greenhouse that they eat the newly-planted cuttings at the base.

Appearance: They are more or less gray, elliptical, and about 1/2 inch in length. The back is covered by a series of plates and seven pairs of legs are present. They are active at night, hiding in the soil and under flower pots in the daytime.

Control: Spraying with **DDT 50%** wettable or **Parathion** on the soil and around the base of the plants will give good control. **Chlordane**, **Dieldrin** or **Endrin** are also effective.



MITES INJURY



GRASSHOPPER



MEALYBUGS

SPIDER MITES (Red-Spiders)

Importance: Spider mites, or red-spiders as they are commonly called, are among the most serious pests of ornamental plants. Because of their very small size and the general habit of feeding on the under-surface of the leaves, their presence often escapes detection until plant damage is obvious.

The needlelike mouthparts are used to puncture the tissues, and a speckled appearance of the leaves and flowers results. In severe infestations, entire leaves may become bleached and curled, and leaf drop occurs.

Appearance: Spider mites are soft bodies. The adult female is less than 1/50 inch in length. They are colored greenish, yellowish, or reddish, and often have dark spots on each side. The eggs are globular or flattened above and are pearly, amber or red in color. Fine strands of silk are spun by spider mites, although the webs may not be detected readily except when large numbers are present.

It has been estimated that one female is capable of giving rise in one month's time to a progeny of 20 mites at 60° F., about 13,000 mites at 70° F., and well over 13 million mites at 80° F. constant temperature.

Aramite, Chlorobenzilate, Tedion, Vaportone, Kelthane, Pentac, Parathion or Malathion spray or Aramite, Chlorobenzilate, Dithio, Parathion or Malathion bomb. Systox as a systemic is very effective. Thimet, another systemic, is being used where conditions for application are right. Plantfume 103 smoke generators are much safer than other insecticides when used on open flowers.

Control: Control of spider mites has long been a major problem in the production of greenhouse crops. Several rather recently developed acaricides have proved the most satisfactory, although each is subject to limitations.

SYMPHYLIDS

Importance: Symphylids destroy the fine root hairs and small rootlets, thus stunting the plants and sometimes killing them outright.

Appearance: Symphylids are small white creatures about 1/8 to 3/16 inches long. About 40-60 days are necessary for the completion of the life cycle.

Control: Complete control can be obtained with Lindane

applied to the soil. Lindane can be applied to the surface of the soil either as a dust or as a wettable powder in a convenient amount of water. Application can be made when plants are in the bed, but best results are obtained if the insecticide is worked into the soil prior to planting. Use Lindane 25W at the rate of 8 ounces per 1000 ft. or 1% Lindane dust at the rate of 10 pounds per 1000 sq. ft.

TARNISHED PLANT BUGS

Importance: The tarnished plant bug or sting fly comes into the greenhouse through open doors and ventilators in late summer or early fall and does considerable harm to this crop. Chrysanthemums growing in the open are frequently affected.

Injury: It has sucking mouth parts and obtains its food by inserting its long slender beak into the plant tissues and sucking up the contents of the injured cells, apparently injecting saliva, which causes the death of the tissue in the immediate vicinity. The stem is often slightly bent, and the terminal growth is malformed because of the injection.

Appearance: It is 1/4" long by 1/8" wide, flattened and

oval in outline, with a small head projecting in front. Generally brown in color, it is mottled with small splotches of white, yellow, reddish brown or black. Along the side of the body near the back is a clear yellow triangle with a small round black dot at the tip.

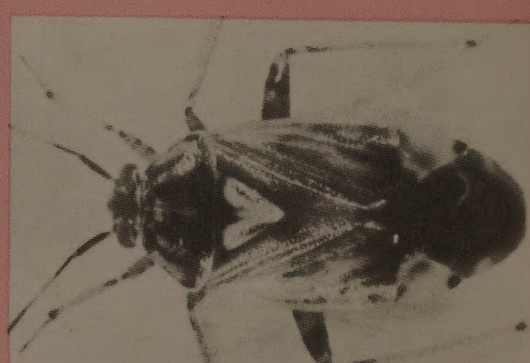
Control: Early morning spraying or dusting with any of the pyrethrum materials will kill those bugs that are present but this will have to be done each day for complete eradication. Dieldrin and Malathion have been giving fair control, but again these insecticides are best used as a contact. Parathion fumigation will control this insect in the greenhouse.



RED SPIDER INJURY



SYMPHYLID, ABOVE, ADULT—
BELOW, EGGS AND YOUNG



TARNISHED PLANT BUG

TERMITES

Importance: Termites are sometimes reported to be greenhouse pests, not only by destroying benches and other wooden structures, but by gnawing and killing chrysanthemums. They attack the mainstalk of the root just below the surface of the ground, tunneling it out or girdling it.

Appearance: The workers and soldiers are pale, soft-bodied, and wingless, about $\frac{1}{4}$ inch in length. Reproductive forms are black, about $\frac{1}{2}$ inch in length, and

they develop wings in the fall. Termites may be distinguished readily from ants by the lack of a slender waist.

Control: Clean up all wood debris in soil. Replace old wooden benches. Keep wooden bench supports from direct contact with the ground.

Spray soil with **Lindane, Dieldrin, Chlordane** or **Endrin**.

THRIPS

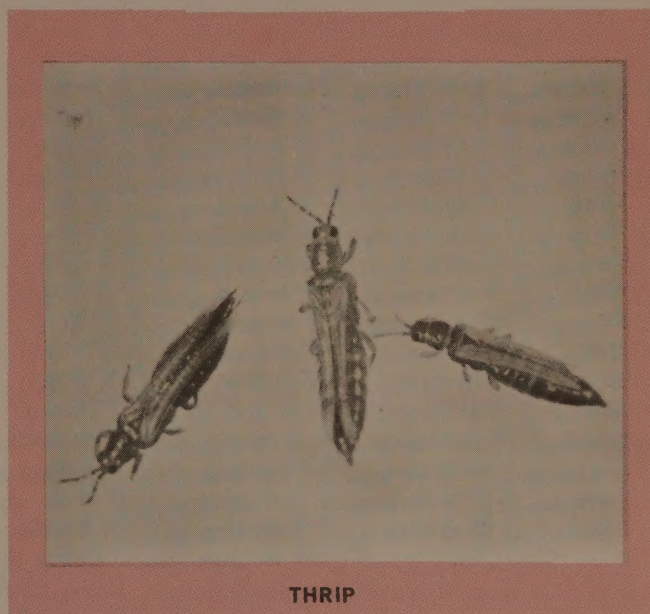
Importance: The chrysanthemum is usually attacked by one or more species of thrips. Thrips feed on plant tissues by puncturing the surface and sucking the juices. A silvering of the leaves results. This may be accompanied by premature defoliation or else the flowers may be seriously blotched and streaked.

Certain species of thrips—the western, flower thrips, the Moulton flower thrips, and the onion thrips—are of further importance because they serve as carriers of serious virus diseases of many flowering plants. The nymphs of these thrips acquire the virus by feeding on an infected plant and transmitting it.

Appearance: Thrips are slender, very small insects, ranging from $\frac{1}{50}$ to $\frac{1}{125}$ inch in length when grown. Adults are usually colored dark brown or yellowish, and the wings are banded with white in some species. Immature stages are usually whitish or yellowish with red eyes.

Thrips sometimes run rapidly, and some are able to hop. Adults are usually able to fly, although the very slender, feather-like wings may not be noted when they are folded over the back.

Control: DDT 50W used at the rate of 1 pound to 100 gallons of water is a very effective control. **Malathion, Parathion, Endrin** or **Lindane** are also recommended. Regular dustings or spraying are necessary where infestation is heavy.



Application of Insecticides. Best results are obtained with a sprayer that has mechanical agitation. Wettable powder sprays are less likely to cause plant injury than are emulsion sprays. Dusts usually are applied at $\frac{3}{4}$ to 1 pound per 1,000 square feet. Aerosols and smoke generators can be used only in greenhouses or tight plastic houses; the manufacturer's directions should be followed for dosages.

Insecticides. The insecticides vary greatly in their toxicity to man and animals. To give an indication of their probable hazards to humans, they are grouped below according to their acute oral toxicity to white rats. The figure after each compound is the LD50. LD50 means "lethal dose 50%" and indicates the dose of a chemical in milligrams per kilograms of body weight which will cause death of 50% of the test animals.

VERY HIGH TOXICITY

TEPP	1.2
Systox	3.0
Thimet	3.7
Dithio	5.0
Parathion	6.0
Phosdrin	6.5
OMPA	10.0
Endrin	10.0

HIGH TOXICITY

Trithion	30
Nicotine	50
Dexon	60
Meta Systox R	65
Dieldrin	87
Heptachlor	90
Ethion	96

MODERATE TOXICITY

Thiodan	110
Diazinon	150
Dimethoate	155
Lindane	200
DDT	250
Dibrom	430
Chlordane	457
Dylox	500

LOW TOXICITY

Sevin	540
Kelthane	809
Malathion	1,500
Eradex	1,800
Chlorobenzilate	3,100
DDD	3,400
Aramite	6,300
Terrachlor	12,000
Tedion	14,700

Safety in Using Insecticides. Insecticides kill by affecting insect life processes, like digestion, circulation, or nerve reactions. Usually, to a certain degree, they have a similar effect on the same life processes in man. Thus, it is essential to take safety precautions at all times. The object of these precautions is not to scare people out of using insecticides but to enable them to derive the most benefit from insecticides without suffering any harmful effects.

Following is a list of safety precautions:

1. **Wear** protective clothing and respirators while applying any insecticide. Wear gloves of natural rubber or crylon plastic when handling containers.
2. **Don't** inhale sprays or dusts.
3. **Never** allow insecticides to remain on the skin—wash thoroughly, immediately.
4. **Remove** contaminated clothing and launder before using again.
5. **Bathe** carefully after using insecticides for prolonged periods.

6. **Watch** for drifting! If insecticides drift out of a treated area, they may harm people nearby.
7. **Keep** insecticides out of the reach of children and pets. Store on high shelves and in a locked cabinet if possible.
8. **Never** remove the label from insecticide containers. Make sure label remains on container and is not defaced.
9. **Never** store insecticides in anything but their original containers.

Compatibility of Insecticides and Fungicides. It is preferable to apply insecticides and fungicides separately. Because of differences in solvents and emulsifiers, various formulations may be incompatible even though the basic materials are compatible. In general, mix liquids with liquids, wettable powders with wettable powders, and use materials of the same brand if possible.

Complete information on the plant tolerances of the various insecticides cannot be given in this guide. Where doubt exists as to their effects, the materials should be used only on a small number of plants until it is certain that plant injury will not result.

Bacterial Wilt or Stem Rot

Symptoms. Plants in all stages of growth may exhibit symptoms. In newly-planted cuttings it first appears as early wilting. Examination of cuttings will show the stems to be filled with a soft jelly-like, often red-colored mass. Stems may crack open in later stages and as the soft jelly dries it leaves the stems hollow. Break-down of the infected plants may start at the location of a pinch and work down and out into breaks from pinch. Complete loss of the plants is not uncommon. In most cases, plants will wilt at some stage of the disease's progress causing the growth to be retarded, but it is possible for wilting to occur as late as flower opening.

Control. Remove and burn immediately all affected plants. Avoid pinching wet plants to prevent spread of the bacteria. Since it is a disease that attacks soft tissue during rapid growing periods of the year avoid excess use of ammonium fertilizers. Avoid dipping cuttings. Exercise care in variety selection for this period whenever possible.

Basal Stem Rots

Symptoms. One of the diseases is accounting for a high loss of plants and production during the high humidity, high temperature periods of growing. One of two fungi are involved:

- (1) **RHIZOCTONIA:** May be distinguished by the following:

- (A) The decay originates near the soil surface rather than in the root system;
- (B) The diseased area has a brown coloration from the branches of the organism;
- (C) Strands of mycelium can be seen with a hand lens;
- (D) Where plants are crowded such as in a propagating bed or container the fungus can form a strong, brown-colored web over the plants, and
- (E) The expression of the disease is often rapid and may rot mature plants upward from an infection at soil line.

- (2) **PYTHIUM:** May be characterized by the following symptoms:

- (A) Rotting may start at the root tips;
- (B) Does not produce a characteristic color; roots will be brown and black depending on the various stages of decomposition. Rapid blackening of stem on actively growing plants is not uncommon;
- (C) May destroy the root system slowly causing a slow retardation in growth; and
- (D) In almost all cases the root system has stood in water at some time.
- (E) May be spread by pinching, causing death of plant from pinch, down to soil line.

Diseases and Their Control

Field observations often reveal both **Pythium** and **Rhizoctonia** attacking the plant at the same time. Spread of the organisms is through transfer of plants, tools and soils. Next to poor soil aeration and inadequate drainage, high salt concentrations are known to increase the severity of expression. The most severe symptoms of the disease are usually found on the beds having an uneven soil surface permitting surface water pockets. In ground beds of a cloth house the greatest incidence will be found in that part of the bed where surface runoff flooding was permitted. In both cases the excess of water seals the soil and provides conditions favorable for both diseases.

Physical Control. Supply better than just adequate drainage for all beds. Time taken in soil and bed preparation is money spent on insurance towards the success of your crop. In cloth houses slightly raised beds aid in preventing flooding and provide additional insurance for proper aeration where you have no control over soil moisture. Remember, these diseases can be transferred from diseased areas to new areas on any type of equipment or tools and by pinching.

Chemical Prevention. Theoretically, both **Rhizoctonia** and **Pythium** may be combatted very nicely by steaming the soil and by following a good sanitation program. However, a good sanitation program in commercial greenhouses is an ideal and not often an accomplished fact. Steamed soils are, thus, often reinfested with **Rhizoctonia** and **Pythium**. **Terraclor** has been used successfully to limit the reinfestation of soils by **Rhizoctonia**. However, there has long been a great need for a soil fungicide to work equally as well against **Pythium**. We appear to have it in **Dexon**.

The recommendations for the use of **Dexon-Terraclor** are these: After steaming the potting soil, mix **Dexon-Terraclor** 5%-5% in the soil. Or, after the plants are planted drench with **Dexon-Terraclor** 35%-35% 4 ounces mixed in 100 gallons of water. One word of caution—**Dexon** in solution will break down on exposure to light. So, mix only in a closed spray tank and apply as soon as possible after mixing. The normal colored solution is yellow, after exposure to light it is red or purple and will be ineffective as a soil fungicide.

Flower Rots

(1) RAY BLIGHT

Symptoms. Caused by a fungus. **Ascochyta chrysanthemi**, which may attack any part of the chrysanthemum plant during its normal growing cycle. The name RAY BLIGHT is derived from the fact that noticeable expression is most often on the ray florets of a developing flower.

- (A) Petals on one side of the flower turn dark brown or black from their base outward and tend to stick together.
- (B) Rot may progress down the flower stem.
- (C) Blossom falls apart.
- (D) The leaves and unopened buds also may be attacked, producing a mushy, black-brown spotting and rotting under continued moist and moderate temperature conditions. The rot may extend from the leaves into the stem causing a brown to black lesion which may eventually

girdle the stem and cause death at the top of the plant. In severe cases rot will weaken the stems sufficiently to permit flopping over of the flower heads.

- (E) The infected leaf tissue may resemble *Septoria* leaf spot but it is usually distinguished by the lack of circular spot pattern common to *Septoria* and the presence of yellowing of tissue next to an infection of *Ascochyta*.

The fungus can withstand extremes of temperature and moisture and can lie dormant for prolonged periods and yet be destructive when reactivated by favorable climatic conditions.

Control. When the crop is finished, thoroughly clean the growing area and destroy all chrysanthemum tissue collected. Once the fungus infects the flowers no applications of fungicidal sprays can stop the disease, therefore it is essential that a regular prevention program be followed. Lower the humidity as much as practical and spray on a regular schedule until buds show. At bud appearance alternate spraying the flower from below and above using **PARZATE** and **ORTHOCIDE 50W** at one ounce per 4 gallons of water plus one-third teaspoonful of **DuPont spreader-sticker**. This should be repeated at no less than 5-day intervals. In cloth houses rains should always be followed with sprays regardless of frequency. However, if frequency is occurring closer than 5-day intervals reduce the quantity of spray material and the spreader sticker to ½ the regular rate. During periods of excessively high humidity additions of **MANZATE** ½ lb. per 100 gallons of water also has been effective. There is some evidence to show that **CAPTAIN (ORTHOCIDE 50W)** will produce fading of open flowers more readily than **Parzate**. Fading of flowers also has been reported by growers when excessive use of stickers and spreaders has been permitted.

(2) BOTRYTIS

Symptoms. The organism may attack any part of a chrysanthemum plant during its normal growing cycle and frequently cause the greatest losses on mature flowers in transit. Expression of the disease varies considerably from *Ascochyta*.

- (A) It does not attack the flower bud from the inside and is usually found on a more mature or fully-opened flower.
- (B) Foliage infections are characteristically soft brown and upon drying do not have any distinguishing features.
- (C) Botrytis is found most often on the foliage shaded in the center of the bench.
- (D) Mature infections will produce visible threads of mycelium that upon drying are white in color.
- (E) The organism most readily attacks injured tissue such as that burned from excess of fertilizer and sunburn.

Control. Reduce the quantity of free water that stands on flowers and foliage as much as possible. Do not ship moist flowers.

Spray regularly with **PARZATE** and **ORTHOCIDE 50W** at same rate and frequently used for *Ascochyta* control. **CM19** may also be used as a foliar spray. **BOTRAN** applied at the rate of $\frac{1}{2}$ lb. per 100 gallons of water with a little spreader shows considerable promise. As with all new materials, we suggest it be tried on a small scale.

Damage caused by *Botrytis*, as well as actual petal burn, occurring under conditions of high temperatures and high humidity, can be lessened by stretching a double thickness of cheesecloth on top of the shade-cloth supports. This practice is used chiefly on standards from the time they are about half open until they are cut.

Foliar Nematode

Injury. The leaves attacked become blotched, turn at first greenish-yellow, then brownish, later gray and finally black until the entire leaf dies and hangs down on the stem. Under conditions of high humidity both in the open during a wet season and under glass due to excessive watering, the spread of the pest may be extremely rapid.

Control. The latest findings show that foliar nematodes can be controlled with **Parathion** either as an aerosol or liquid spray. **Systox** emulsion applied on soil drench 2-4 weeks after planting is effective.

Mildew

Symptoms. Whitish powdery growth on upper surface of leaves.

Control. Spray at regular weekly intervals with a good **wettable Sulfur**, $1\frac{1}{2}$ pounds per 100 gallons of water to which a good commercial spreader has been added. Spray with **Mildex** 4 ounces per 100 gallons of water plus spreader whenever disease appears.

Rust

Symptoms. Chocolate brown powdery pustules on lower surface of the leaves.

Control. **PARZATE**, one ounce to 4 gallons of water is most effective.

Septoria Leaf Spot or Leaf Blight

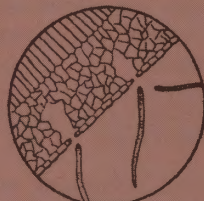
Symptoms. Distinct circular spots on the foliage. These are grayish-brown in color and become brittle in the center. Affected leaves may turn yellow and die. The disease is more prevalent in the open. Some varieties are more susceptible than others.

Control. When cuttings are received, dunk the tops into **FERMATE** (2 tablespoons to a gallon). Spray the plants with **PARZATE** at the rate of one ounce to 4 gallons of water plus one-third teaspoonful of **DuPont spreader-sticker** every 10 to 14 days. Cloth house mums should be kept covered until the buds can be seen.

BIOLOGY OF THE FOLIAR NEMATODE



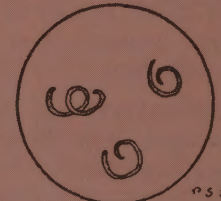
Eelworms moving from the ground up the outside of the stem and leaf-stalks into the basal leaves. (Spring)



Eelworms entering leaf through the stomata. (Spring-Summer)



Eelworms feeding and breeding in leaves and migrating upwards from leaf to leaf (Spring-Autumn)



Eelworms overwintering in soil, dead leaves and in basal buds. (Winter)

Sclerotinia

Symptoms. The organism is easily recognized by the dense, white wet-appearing, cottony mass-like growth in which are found hard black seed like sclerotia. Under field conditions air-borne spores develop and subsequent infection makes it more difficult to control. Expression of the disease is rarely seen on greenhouse chrysanthemums and then only when poor regulation of temperature and humidity prevail. Under cool, moist, often prolonged foggy periods in the field it will attack mature, healthy plants and cause death of plants through wilting.

Control. Ventilate properly. Remove the infected plant material and burn. Spray lower foliage with **TER-RACLOR** at the rate of 1½ to 2 pounds to 100 gallons of water. Be careful to clean up and burn all crop residue. Hard sclerotia are able to reinfect plants after the initial infection.

Verticillium Wilt or Seidewitz Disease

Symptoms. Margins of leaves turn yellow and eventually wilt or dry up. This begins at base of plant and works up the stem. May affect one side of a stem or plant more than the other. No distinct spots. Varieties vary in resistance to this disease.

Control. Verticillium wilt can be avoided by purchasing our disease-free cuttings produced from cultured stock. It is also necessary to plant only into sterilized soil. Steam and chloropicrin are the only known effective soil sterilants.



VERTICILLIUM WILT

Virus

The virus particles cannot be seen by the most powerful microscopes. Most of them will pass through bacterial filters. They respond like living organisms. They are always present in the sap of diseased plants and can be transmitted to a healthy plant through wounds or by mechanical means. The chrysanthemum is known to be affected with 7 viruses, namely yellows, spotted wilt, flower distortion, Aspermy, rosette, mosaic and stunt. Stunt is the only one that has caused much concern. It has been found that aphids as well as mechanical handling will cause stunt to spread.

Virus diseases can be avoided only by purchasing our disease free stock.

Yellow Strap Leaf

A physiological disorder that causes complete yellowing to whitening of plant tissue coupled with extreme distortion of foliage and abortion of terminal growth. Extreme symptoms are similar to weed-killer injury. The disorder is related to the plants absorption of an amino acid, isoleucine, which is produced as a result of bacterial decomposition of organic nitrogen fertilizers such as Guano. The acid apparently accumulates at the interface between the top soil and the moisture saturated sub soil. Under those conditions it presents no problem since plant roots do not normally inhabit this zone. When soil from this area is mixed into planting zone soil the plant roots absorb the acid and subsequent symptom expression occurs. This explanation is also the key to the only known control of the problem. Plants expressing symptoms at a juvenile stage may appear normal at a later date. To date the disorder has been reported to occur most often in Florida.

Many Problems Are Falsely Attributed to Viruses

Almost every abnormal growth and flowering trait a chrysanthemum variety can develop has at one time or other been diagnosed by growers as being caused by a virus.

When we've followed up on reports of suspected virus we've found the great majority of cases are not virus at all. The causes of these pseudo-virus symptoms are numerous and interesting.

Take, as case one, the inherent or genetic foliar mottle that is fairly well known and nicely illustrated by the Goldsmith varieties. High temperatures increase the white flecking on the leaves. They have often been suspected as being the result of some virus.

Case two would be applied sprays. Parathion in particular, easily bleaches such varieties as Christmas Star and Anaconda. Oil emulsions in sprays frequently cause severe crippling of chrysanthemum foliage. Iscothane, a mildew fungicide is known to sometimes result in severe chlorophyll injury. This has frequently been reported as virus outbreak. Another frequently encountered case is that where very slight amounts of weed killers readily cause severe leaf distortion. This is a common claim for virus infection.

Serious injuries to foliage as a residual effect of thrip or aphid or spider infestations have sometimes been interpreted as of virus origin.

BLOOM — MAY 20, 1963

LATITUDE	PLANT	PINCH*	LIGHTING PERIOD	START SHADE	RESPONSE GROUP
40 - 50°	JAN. 7	FEB. 4	JAN. 7 - MAR. 11 JAN. 7 - MAR. 18 JAN. 7 - MAR. 25	MAR. 18 MAR. 25 APR. 1	10 WEEK 9 WEEK 8 WEEK
25 - 40°	JAN. 7	FEB. 4	JAN. 7 - MAR. 11 JAN. 7 - MAR. 18 JAN. 7 - MAR. 25	MAR. 18 MAR. 25 APR. 1	10 WEEK 9 WEEK 8 WEEK

BLOOM — MAY 27, 1963

40 - 50°	JAN. 14	FEB. 11	JAN. 14 - MAR. 18 JAN. 14 - MAR. 25 JAN. 14 - APR. 1	MAR. 18 MAR. 25 APR. 1	10 WEEK 9 WEEK 8 WEEK
25 - 40°	JAN. 21	FEB. 11	JAN. 21 - MAR. 18 JAN. 21 - MAR. 25 JAN. 21 - APR. 1	MAR. 18 MAR. 25 APR. 1	10 WEEK 9 WEEK 8 WEEK

BLOOM — JUNE 3, 1963

25 - 50°	JAN. 28	FEB. 18	JAN. 28 - MAR. 25 JAN. 28 - APR. 1 JAN. 28 - APR. 8	MAR. 25 APR. 1 APR. 8	10 WEEK 9 WEEK 8 WEEK
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BLOOM — JUNE 10, 1963

25 - 50°	FEB. 4	FEB. 25	FEB. 4 - APR. 1 FEB. 4 - APR. 8 FEB. 4 - APR. 15	APR. 1 APR. 8 APR. 25	10 WEEK 9 WEEK 8 WEEK
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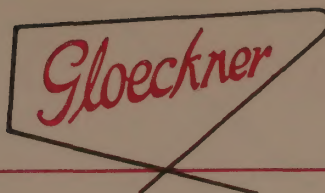
BLOOM — JUNE 17, 1963

25 - 50°	FEB. 18	MAR. 11	FEB. 18 - APR. 8 FEB. 18 - APR. 15 FEB. 18 - APR. 22	APR. 8 APR. 15 APR. 22	10 WEEK 9 WEEK 8 WEEK
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BLOOM — JUNE 24, 1963

25 - 50°	FEB. 25	MAR. 18	FEB. 25 - APR. 15 FEB. 25 - APR. 22 FEB. 25 - APR. 29	APR. 15 APR. 22 APR. 29	10 WEEK 9 WEEK 8 WEEK
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* For No Pinch Method: Plant and Light on Pinch Date



		10 WEEK	9 WEEK	8 WEEK
WHITE	S	GIANT NO. 4 IND. WHITE IMP. IND. WHITE CRYSTAL QUEEN FRED SHOESMITH TOKYO	DONLOPE'S WH. SP. NO. 2 DONLOPE'S WH. SP. QUEEN'S LACE	WH. PINK CHIEF SILVER SHEEN
	P	SOVEREIGN HURRICANE PING PONG WHITETOP ICEBERG SNOW CRYSTAL DAWN STAR CORONADO ILLINI IGLOO SHASTA WHITE SANDS STARDUST ILLINI SNOWDRIFT BONNIE JEAN	SILVERTONE CLOUDBANK WHITE POPCORN WHITE KEEPSAKE PINOCCHIO ALABASTER MEMENTO HALO ALASKA THISTLEDOWN THUNDERBOLT	ECHO BLIZZARD PRISTINE
YELLOW	S	IMP. IND. YELLOW GIANT NO. 4 IND. YELLOW EXPLORER GOL. YEL. PRINCESS ANNE YELLOW QUEEN YELLOW KNIGHT JONQUIL	MECCA LUYONA GOLD LACE GOLDEN BOY	BLAZING GOLD BUTTERBALL
	P	TOPAZ YELLOW VISCOUNT GOLDEN BANTAM YELLOW BEAUREGARD NO. 2 YELLOW ICEBERG LIGHT YELLOW ICEBERG GOLDEN CRYSTAL GOLDEN SHASTA YELLOW IGLOO HEYDAY GOLDEN STARDUST JACKSTRAW YELLOW BONNIE JEAN	YELLOW KEEPSAKE GOLD COAST HAPPINESS SUNBEAM FLAIR NO. 2 DANDY STATESMAN BRILLIANCY YELLOWCHIP	YELLOW CALUMET TOPFLIGHT
BRONZE & RED	S	DK. IND. BRONZE NOMAGO FLAXEN PRICCESS ANNE COPPER QUEEN BLAZE	SYMBOL FRED YULE CHAMBRIER	AMBER BRIGHT MAYFORD TITAN
	P	TUNEFUL BRONZE DELIGHT DILLON BEAUREGARD WIZARD GILTGLOW	RESOLUTE GAITY BUCKSKIN BRONZCHIP COPPERCHIP TANFASTIC	CALUMET DARK CALUMET
PINK	S	IND. PINK PRINCESS ANNE NO. 2 DARK QUEEN	BUNBU MISS AMERICA	PINK CHIEF
	P	DELIGHT OVERTURE PORTRAIT EXCELLO CHEERFUL BRIGHT 'N CHEERFUL VALIANT	BLUECHIP CHERRYCHIP DARKCHIP TEMPO AMBROSIA PINK MARBLE	ENTERPRISE ACCOLADE MIRTH

S — Standard

P — Pompon

CUT FLOWERS

BLOOM — JULY 1, 1963

LATITUDE	PLANT	PINCH*	LIGHTING PERIOD	START SHADE	RESPONSE GROUP
25 - 50°	MAR. 4	MAR. 25	MAR. 4 - APR. 22 MAR. 4 - APR. 29 MAR. 4 - MAY 6	APR. 22 APR. 29 MAY 6	10 WEEK 9 WEEK 8 WEEK

BLOOM — JULY 8, 1963

25 - 50°	MAR. 18	APR. 8	MAR. 18 - APR. 29 MAR. 18 - MAY 6 MAR. 18 - MAY 13	APR. 29 MAY 6 MAY 13	10 WEEK 9 WEEK 8 WEEK
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BLOOM — JULY 15, 1963

25 - 50°	MAR. 25	APR. 15	MAR. 25 - APR. 29 MAR. 25 - MAY 6 MAR. 25 - MAY 13	MAY 6 MAY 13 MAY 20	10 WEEK 9 WEEK 8 WEEK
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BLOOM — JULY 22, 1963

25 - 50°	APR. 1	APR. 22	APR. 1 - APR. 29 APR. 1 - MAY 6 APR. 1 - MAY 13	MAY 13 MAY 20 MAY 27	10 WEEK 9 WEEK 8 WEEK
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BLOOM — JULY 29, 1963

25 - 50°	APR. 8	APR. 29	APR. 8 - APR. 29 APR. 8 - MAY 6 APR. 8 - MAY 13	MAY 20 MAY 27 JUNE 3	10 WEEK 9 WEEK 8 WEEK
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BLOOM — AUGUST 5, 1963

25 - 50°	APR. 15	MAY 6	APR. 15 - APR. 29 APR. 15 - MAY 6 APR. 15 - MAY 13	MAY 27 JUNE 3 JUNE 10	10 WEEK 9 WEEK 8 WEEK
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BLOOM — AUGUST 12, 1963

25 - 50°	APR. 22	MAY 13	APR. 22 - APR. 29 APR. 22 - MAY 6 APR. 22 - MAY 13	JUNE 3 JUNE 10 JUNE 17	10 WEEK 9 WEEK 8 WEEK
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BLOOM — AUGUST 19, 1963

LATITUDE	PLANT	PINCH*	START SHADE	RESPONSE GROUP
25 - 50°	APR. 29	MAY 20	JUNE 10 JUNE 17 JUNE 24	10 WEEK 9 WEEK 8 WEEK

BLOOM — AUGUST 26, 1963

25 - 50°	MAY 13	MAY 27	JUNE 17 JUNE 24 JULY 1	10 WEEK 9 WEEK 8 WEEK
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BLOOM — SEPTEMBER 2, 1963

25 - 50°	MAY 20	JUNE 3	JUNE 24 JULY 1 JULY 8	10 WEEK 9 WEEK 8 WEEK
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* For No Pinch Method: Plant and Light on Pinch Date

		10 WEEK	9 WEEK	8 WEEK
WHITE	S	GIANT BETSY ROSS THE FAVOURITE TOKYO	MARBLEHEAD DONLOPE'S WH. SP. NO. 2 DONLOPE'S WH. SP. QUEEN'S LACE THEMESONG	WH. PINK CHIEF SILVER SHEEN
	P	SOVEREIGN HURRICANE PING PONG WHITE SANDS ICEBERG SNOW CRYSTAL DAWN STAR CORONADO ILLINI IGLOO CYCLONE NO. 2 SHASTA STARDUST ILLINI SNOWDRIFT BONNIE JEAN	SILVERTONE CLOUDBANK POPCORN WHITE POPCORN KEEPSAKE PINOCCHIO ALABASTER MEMENTO ALASKA THISTLEDOWN THUNDERBOLT	ECHO BLIZZARD PRISTINE
YELLOW	S	YELLOW BETSY ROSS JONQUIL GOL. YEL. PRINCESS ANNE YELLOW KNIGHT	GOLDEN MARBLEHEAD LUYONA GOOD NEWS GOLDEN BOY	AMBER BRIGHT BLAZING GOLD BUTTERBALL
	P	TOPAZ CRESCENDO YELLOW BEAUREGARD NO. 2 YELLOW ICEBERG LIGHT YELLOW ICEBERG GOLDEN CRYSTAL GOLDEN SHASTA YELLOW IGLOO FANFARE YELLOW VISCOUNT YELLOW SKYLINE	YEL. KEEPSAKE HAPPINESS SUNBEAM NO. 2 DANDY STATESMAN YELLOWCHIP	YELLOW CALUMET TOPFLIGHT
BRONZE & RED	S	FLAXEN PRINCESS ANNE BR. PRINCESS ANNE	SYMBOL FRED YULE	
	P	RED JETFIRE DILLION BEAUREGARD WIZARD	BRONZE DOT BUCKSKIN COPPERCHIP TANFASTIC	CALUMET DARK CALUMET
PINK	S	LAUGHTER	BUNBU MISS AMERICA	
	P	OVERTURE EXCELLO VALIANT BRIGHT 'N CHEERFUL	PINKETTE REWARD BLUECHIP DARKCHIP CHERRYCHIP	MIRTH

BLOOM — SEPTEMBER 9, 1963

LATITUDE	PLANT	PINCH*	START SHADE	RESPONSE GROUP
25 - 50°	MAY 27	JUNE 10	JULY 1 JULY 8	10 WEEK 9 WEEK

BLOOM — SEPTEMBER 16, 1963

25 - 50°	JUNE 3	JUNE 17	JULY 8 JULY 15	10 WEEK 9 WEEK
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BLOOM — SEPTEMBER 23, 1963

25 - 50°	JUNE 3	JUNE 17	JULY 8 JULY 15 JULY 22	11 WEEK 10 WEEK 9 WEEK
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BLOOM — SEPTEMBER 30, 1963

40 - 50°	JUNE 10	JUNE 24	JULY 15 JULY 22 JULY 29	11 WEEK 10 WEEK 9 WEEK
25 - 40°	JUNE 17	JULY 1	JULY 15 JULY 22 JULY 29	11 WEEK 10 WEEK 9 WEEK

BLOOM — OCTOBER 7, 1963

40 - 50°	JUNE 17	JULY 1	JULY 22 JULY 29 AUG. 5	11 WEEK 10 WEEK 9 WEEK
25 - 40°	JUNE 24	JULY 8	JULY 22 JULY 29 AUG. 5	11 WEEK 10 WEEK 9 WEEK

BLOOM — OCTOBER 14, 1963

40 - 50°	JUNE 24	JULY 8	JULY 29 AUG. 5 AUG. 12	11 WEEK 10 WEEK 9 WEEK
25 - 40°	JULY 1	JULY 15	JULY 29 AUG. 5 AUG. 12	11 WEEK 10 WEEK 9 WEEK

BLOOM — OCTOBER 21, 1963

40 - 50°	JUNE 24	JULY 8	AUG. 5 AUG. 12 NO	11 WEEK 10 WEEK 9 WEEK
25 - 40°	JULY 1	JULY 15	AUG. 5 AUG. 12 NO	11 WEEK 10 WEEK 9 WEEK

BLOOM — OCTOBER 28, 1963

40 - 50°	JULY 8	JULY 22	AUG. 5 AUG. 12 AUG. 19	12 WEEK 11 WEEK 10 WEEK
30 - 40°	JULY 8	JULY 22	AUG. 5 AUG. 12 AUG. 19	12 WEEK 11 WEEK 10 WEEK
25 - 30°	JULY 15	JULY 29	AUG. 5 AUG. 12 AUG. 19	12 WEEK 11 WEEK 10 WEEK

* For No Pinch Method: Plant on Pinch Date

		12 WEEK	11 WEEK	10 WEEK	9 WEEK
WHITE	S	WHITE PETER JOHN	MARKETEER	GIANT NO. 4 IND. WHITE IMP. IND. WHITE CRYSTAL QUEEN GIANT BETSY ROSS TOKYO	DONLOPE'S WH. SP. NO. 2 D'NL'P'S WH. SP. QUEEN'S LACE ALBATROSS THEMESONG
	P	SILVERCREST ILLINI GLACIER	WHITE TAFFETA DIVINITY SCULPTURE JUPITER HIGHBROW BRIDE LIGHTNING	SOVEREIGN HURRICANE PING PONG WHITETOP ICEBERG ENCORE DAWN STAR CORONADO ILLINI IGLOO SHASTA CLOUDBURST WHITE SAND CYCLONE STARDUST ILLINI SNOWDRIFT BONNIE JEAN	SILVERTONE WHITE POPCORN WHITE KEEPSAKE PINOCCHIO MEMENTO ALASKA CLOUDBANK ALABASTER THUNDERBOLT
YELLOW	S	YELLOW PETER JOHN	HARVESTER	GIANT NO. 4 IND. YEL. IMP. IND. YELLOW EXPLORER GOL. YEL. PRINC. ANNE YELLOW QUEEN YELLOW KNIGHT	LUYONA GOLD LACE GOOD NEWS GOLDEN BOY YELLOW ALBATROSS
	P	GOLDSMITH HIGHLANDER ILLINI WAMPUM OMEGA YELLOW GALAXY	YELLOW ETUDE SOUVENIR HIGHBALL FORTY NINER SHANE ILLINI GOLDRIFT LOLLIPOP KLONDIKE GOLDEN PARAMOUNT STARFLITE	TOPAZ IMPERIAL GOLDEN BANTAM YELLOW BEAUREGARD NO. 2 YEL. ICEBERG GOLDEN CRYSTAL JACKSTRAW GOLDEN SHASTA HEYDAY GOLDEN STARDUST YELLOW VISCOUNT LIGHT YELLOW ICEBERG	YELLOW KEEPSAKE GOLD COAST HAPPINESS SUNBEAM FLAIR STATESMAN BRILLIANCY YELLOWCHIP
BRONZE & RED	S	BR. PETER JOHN	BALCOMBE PERFECTION VALENTINE	MAPLE LEAVES FLAXEN PRINCESS ANNE DK. IND. BRONZE BR. PRINCESS ANNE COPPER QUEEN BLAZE	CHAMBRIER SYMBOL DETROIT NEWS FRED YULE
	P	DRAGON GALAXY BRONZE GOLDSMITH CRACKERJACK RUBAIYAT	BEAUREGARD SUPREME RANGER REBEL CARDINAL THELMA	TUNEFUL RED JETFIRE BRONZE DELIGHT DILLON BEAUREGARD WIZARD CLIMAX GILTGLOW	GAIETY BRONZECHIP COPPERCHIP PEACHCHIP TANFASTIC BUCCANEER BRONZE DOT
PINK	S	PINK PETER JOHN	THANKSGIVING PINK	IND. PINK BLUEBIRD PRINCESS ANNE NO. 2 DK. QUEEN PINK CHAMPAGNE	BUNBU MISS AMERICA
	P	HI-FI LEGEND DELMAR SPLENDOR ROYAL PROM	PINK JUBILATION STACCATO BLUE SKIES DELMARVEL SIGNET FLAMENCO	DELIGHT OVERTURE PORTRAIT EXCELLO CHEERFUL BRIGHT 'N CHEERFUL VALIANT	BLUECHIP CHERRYCHIP PEARLCHIP AMBROSIA PINK MARBLE

S — Standard

P — Pompon

BLOOM — NOVEMBER 4, 1963

LATITUDE	PLANT	PINCH*	LIGHTING PERIOD	START SHADE	RESPONSE GROUP
40 - 50°	JULY 8	JULY 22	NONE AUG. 1 - AUG. 26	AUG. 12 AUG. 19 AUG. 26	12 WEEK 11 WEEK 10 WEEK
30 - 40°	JULY 8	JULY 22	NONE AUG. 1 - AUG. 26	AUG. 12 AUG. 19 AUG. 26	12 WEEK 11 WEEK 10 WEEK
25 - 30°	JULY 15	JULY 29	NONE AUG. 1 - AUG. 26	AUG. 12 AUG. 19 AUG. 26	12 WEEK 11 WEEK 10 WEEK

BLOOM — NOVEMBER 11, 1963

40 - 50°	JULY 8	JULY 29	NONE AUG. 1 - SEPT. 2	AUG. 19 AUG. 26 NO	12 WEEK 11 WEEK 10 WEEK
30 - 40°	JULY 8	JULY 29	NONE AUG. 1 - SEPT. 2	AUG. 19 AUG. 26 NO	12 WEEK 11 WEEK 10 WEEK
25 - 30°	JULY 15	AUG. 5	NONE AUG. 1 - SEPT. 2	AUG. 19 AUG. 26 NO	12 WEEK 11 WEEK 10 WEEK

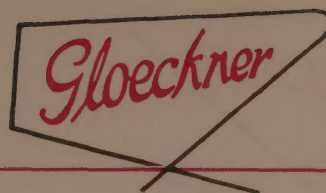
BLOOM — NOVEMBER 18, 1963

40 - 50°	JULY 15	AUG. 5	NONE AUG. 5 - SEPT. 2 AUG. 1 - SEPT. 9	AUG. 26 NO NO	12 WEEK 11 WEEK 10 WEEK
30 - 40°	JULY 15	AUG. 5	NONE AUG. 5 - SEPT. 2 AUG. 1 - SEPT. 9	AUG. 26 NO NO	12 WEEK 11 WEEK 10 WEEK
25 - 30°	JULY 22	AUG. 12	NONE AUG. 5 - SEPT. 2 AUG. 1 - SEPT. 9	AUG. 26 NO NO	12 WEEK 11 WEEK 10 WEEK

BLOOM — NOVEMBER 25, 1963

40 - 50°	JULY 22	AUG. 12	NONE AUG. 12 - SEPT. 2 AUG. 5 - SEPT. 9 AUG. 1 - SEPT. 16	AUG. 26 NO NO NO	13 WEEK 12 WEEK 11 WEEK 10 WEEK
30 - 40°	JULY 22	AUG. 12	NONE AUG. 12 - SEPT. 2 AUG. 5 - SEPT. 9 AUG. 1 - SEPT. 16	AUG. 26 NO NO NO	13 WEEK 12 WEEK 11 WEEK 10 WEEK
25 - 30°	JULY 29	AUG. 19	AUG. 12 - SEPT. 2 AUG. 5 - SEPT. 9 AUG. 1 - SEPT. 16	NO NO NO	12 WEEK 11 WEEK 10 WEEK

* For No Pinch Method: Plant and Light on Pinch Date



		13 WEEK	12 WEEK	11 WEEK	10 WEEK
WHITE	S	SMITH'S WHITE DEC. WHITE	IMP. WH. PETER JOHN CHATTANOOGA DECEMBER GLORY	STERLING MARKETEER	IMP. IND. WHITE GIANT NO. 4 IND. WH. GIANT BETSY ROSS CRYSTAL QUEEN MEFO COLUMBIA FRED SHOESMITH TOKYO
	P	ICECAP ACCLAIM ILLINI ALBA ICEFLO SATELLITE SNOWCREST	SILVERCREST ILLINI GLACIER	WHITE TAFFETA SCULPTURE LIGHTNING BRIDE JUPITER DIVINITY SURFSIDE Highbrow	SOVEREIGN HURRICANE PING PONG WHITETOP ICEBERG ENCORE SNOW CRYSTAL DAWN STAR CORONADO CLOUDBURST SHASTA WHITE SANDS STARDUST ILLINI IGLOO ILLINI SNOWDRIFT
YELLOW	S	TOBIN'S YELLOW SMITH'S YELLOW METEORE	YELLOW PETER JOHN DK. YEL. CHAT'N'GA GOLDEN PEARSON NO. 2 YELLOW GLORY	FRIENDLY RIVAL HARVESTER MARIE DePETRIS	GIANT NO. 4 IND. YEL. IMP IND. YELLOW EXPLORER IMP. YELLOW MEFO GOL. YEL. PRINC. ANNE YELLOW QUEEN NO. 2 YEL. SHOESMITH YELLOW KNIGHT
	P	KINGPIN CORONATION GOL. ACCLAIM SPUNGOLD CORSAIR GOLDFLO	GOLDSMITH HIGHLANDER ILLINI WAMPUM OMEGA YELLOW GALAXY BOREALIS	YELLOW ETUDE SOUVENIR HIGHBALL FORTY NINER SHANE ILLINI GOLDRIFT LOLLIPOP KLONDIKE GOLDEN PARAMOUNT STARFLITE	GOLDTOP GOLDEN BANTAM YELLOW BEAUREGARD LIGHT YEL. ICEBERG NO. 2 YELLOW ICEBERG GOLDEN CRYSTAL GOLDEN SHASTA HEYDAY GOLDEN STARDUST JACKSTRAW TOPAZ
BRONZE & RED	S	RUBY SHOESMITH SAL. BR. SHOESMITH SAL. APR. SHOESMITH SAL.	BR. PETER JOHN GLADYS PEARSON NO. 2 OAK LEAF	BALCOMBE PERFECTION RED BALCOMBE PERF. CALVERT'S GOLD	MAPLE LEAVES REGENCY DK. IND. BRONZE FLAXEN PRINCESS ANNE BR. PRINCESS ANNE COPPER QUEEN MRS. ROY BLAZE
	P	CHRISTMAS STAR DK. BR. MINSTREL	DRAGON GALAXY BRONZE GOLDSMITH CRACKERJACK BRONZE PROM RUBAIYAT	BEAUREGARD SUPREME RANGER REBEL CARDINAL THELMA BRONZE STACCATO	TUNEFUL RED JETFIRE BRONZE DELIGHT DILLON BEAUREGARD GILTGLow WIZARD CLIMAX
PINK	S		PINK PETER JOHN SHOESMITH SALMON	CALVERT'S PINK THANKSGIVING PINK	IND. PINK BLUEBIRD PRINCESS ANNE ROSAMUND NO. 2 DK. QUEEN PINK CHAMPAGNE
	P	DEBUTANTE MINSTREL IMP. PINK MINSTREL	HI-FI LEGEND DELMAR SPLENDOR ROYAL PROM	PINK JUBILATION STACCATO BLUE SKIES DELMARVEL SIGNET FLAMENCO	DELIGHT OVERTURE PORTRAIT EXCELLO CHEERFUL BRIGHT 'N CHEERFUL VALIANT

S — Standard

P — Pompon

BLOOM — DECEMBER 2, 1963

LATITUDE	PLANT	PINCH*	LIGHTING PERIOD	START SHADE	RESPONSE GROUP
40 - 50°	JULY 22	AUG. 12	NONE AUG. 12 - SEPT. 9 AUG. 5 - SEPT. 16 AUG. 1 - SEPT. 23	NO NO NO NO	13 WEEK 12 WEEK 11 WEEK 10 WEEK
30 - 40°	JULY 29	AUG. 19	NONE AUG. 12 - SEPT. 9 AUG. 5 - SEPT. 16 AUG. 1 - SEPT. 23	NO NO NO NO	13 WEEK 12 WEEK 11 WEEK 10 WEEK
25 - 30°	AUG. 5	AUG. 26	AUG. 12 - SEPT. 9 AUG. 5 - SEPT. 16 AUG. 5 - SEPT. 23	NO NO NO	12 WEEK 11 WEEK 10 WEEK

BLOOM — DECEMBER 9, 1963

40 - 50°	JULY 29	AUG. 19	NONE AUG. 19 - SEPT. 9 AUG. 12 - SEPT. 16 AUG. 5 - SEPT. 23 AUG. 1 - SEPT. 30	NO NO NO NO NO	14 WEEK 13 WEEK 12 WEEK 11 WEEK 10 WEEK
35 - 40°	AUG. 5	AUG. 26	NONE AUG. 19 - SEPT. 9 AUG. 12 - SEPT. 16 AUG. 5 - SEPT. 23 AUG. 5 - SEPT. 30	NO NO NO NO NO	14 WEEK 13 WEEK 12 WEEK 11 WEEK 10 WEEK
30 - 35°	AUG. 12	SEPT. 2	NONE AUG. 19 - SEPT. 9 AUG. 12 - SEPT. 16 AUG. 12 - SEPT. 23 AUG. 12 - SEPT. 30	NO NO NO NO NO	14 WEEK 13 WEEK 12 WEEK 11 WEEK 10 WEEK

BLOOM — DECEMBER 16, 1963

40 - 50°	AUG. 5	AUG. 26	NONE AUG. 26 - SEPT. 9 AUG. 19 - SEPT. 16 AUG. 12 - SEPT. 23 AUG. 5 - SEPT. 30 AUG. 5 - OCT. 7	NO NO NO NO NO NO	15 WEEK 14 WEEK 13 WEEK 12 WEEK 11 WEEK 10 WEEK
35 - 40°	AUG. 12	SEPT. 2	NONE AUG. 26 - SEPT. 9 AUG. 19 - SEPT. 16 AUG. 12 - SEPT. 23 AUG. 12 - SEPT. 30 AUG. 12 - OCT. 7	NO NO NO NO NO NO	15 WEEK 14 WEEK 13 WEEK 12 WEEK 11 WEEK 10 WEEK
30 - 35°	AUG. 19	SEPT. 9	AUG. 22 - SEPT. 23 AUG. 19 - SEPT. 30 AUG. 19 - OCT. 7	NO NO NO	12 WEEK 11 WEEK 10 WEEK
25 - 30°	AUG. 19	SEPT. 9	AUG. 19 - SEPT. 23 AUG. 19 - SEPT. 30 AUG. 19 - OCT. 7	NO NO NO	12 WEEK 11 WEEK 10 WEEK

BLOOM — DECEMBER 23, 1963

40 - 50°	AUG. 12	SEPT. 2	NONE AUG. 26 - SEPT. 16 AUG. 19 - SEPT. 23 AUG. 12 - SEPT. 30 AUG. 12 - OCT. 7 AUG. 12 - OCT. 14	NO NO NO NO NO NO	15 WEEK 14 WEEK 13 WEEK 12 WEEK 11 WEEK 10 WEEK
35 - 40°	AUG. 19	SEPT. 9	NONE AUG. 26 - SEPT. 16 AUG. 19 - SEPT. 23 AUG. 19 - SEPT. 30 AUG. 19 - OCT. 7 AUG. 19 - OCT. 14	NO NO NO NO NO NO	15 WEEK 14 WEEK 13 WEEK 12 WEEK 11 WEEK 10 WEEK
30 - 35°	AUG. 19	SEPT. 9	AUG. 19 - SEPT. 30 AUG. 19 - OCT. 7 AUG. 19 - OCT. 14	NO NO NO	12 WEEK 11 WEEK 10 WEEK
25 - 30°	AUG. 26	SEPT. 16	AUG. 26 - SEPT. 30 AUG. 26 - OCT. 7 AUG. 26 - OCT. 14	NO NO NO	12 WEEK 11 WEEK 10 WEEK

* For No Pinch Method: Plant and Light on Pinch Date

Varieties In Response Groups

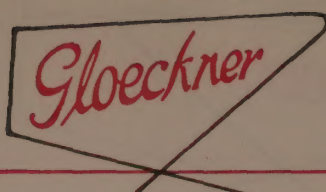
Gloeckner

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		15 WEEK	14 WEEK	13 WEEK	12 WEEK	11 WEEK	10 WEEK
WHITE	S			SMITH'S WHITE DECEMBER WHITE	IMP. WH. PETER JOHN CHATTANOOGA DECEMBER GLORY	STERLING MARKETEER	IMP. IND. WHITE GIANT NO. 4 IND. WHITE CRYSTAL QUEEN MEFO FRED SHOESMITH TOKYO
	P	REVELATION SNOW TALMEDA ILLINI CASCADE	TRENTON SILVERSMITH SNOWCAP ELEGANCE ICEBREAKER	ICECAP ACCLAIM SNOWSTORM ILLINI ALBA ICEFLO SATELLITE SNOWCREST	SILVERCREST ILLINI GLACIER WHITE VALENCIA FORTUNE	JUPITER Highbrow SURFSIDE BRIDE LIGHTNING DIVINITY	ICEBERG SHASTA DAWN STAR LITTLE AMERICA ILLINI SNOWDRIFT ILLINI IGLOO
YELLOW	S			TOBIN'S YELLOW SMITH'S YELLOW METEORE	DK. YEL. CHATTANOOGA NO. 2 YELLOW GLORY	HARVESTER	GIANT NO. 4 IND. YELLOW IMP. IND. YELLOW IMP. YELLOW MEFO YELLOW QUEEN NO. 2 YEL. SHOESMITH YELLOW KNIGHT GOL. YEL. PRINCESS ANNE
	P	SIREN YULEFLAME YELLOW SNOW YELLOW ILL. CASCADE	ILLINI BRIGHTYES NO. 2 GOLDEN ELEGANCE SUN VALLEY VIBRANT SUNRISE	KINGPIN CORONATION GOLDEN ACCLAIM SPUNGOLD CORSAIR GOLDFLO	HIGHLANDER ILLINI WAMPUM OMEGA BOREALIS YELLOW GALAXY	HIGHBALL STARFLITE SOUVENIR SHANE LOLLIPOP	NO. 2 YEL. ICEBERG LIGHT YELLOW ICEBERG GOLDEN SHASTA YELLOW IGLOO HEYDAY YEL. BEAUREGARD
BRONZE & RED	S			RUBY SHOESMITH SAL. BR. SHOESMITH SAL. APR. SHOESMITH SAL.	IMP. BR. PETER JOHN GLADYS PEARSON NO. 2 OAK LEAF	BALCOMBE PERF. RED BALCOMBE PERF. CALVERT'S GOLD	NO. 2 IND. BRONZE BRONZE PRINCESS ANNE FLAXEN PRINCESS ANNE COPPER QUEEN BLAZE REGENCY MAPLE LEAVES
	P		BRONZE ALVODA CHRIST. GREET'G POINSETTIA	CHRISTMAS STAR DK. BR. MINSTREL BEAU BRUMMELL	APR. VALENCIA GALAXY CRACKERJACK DRAGON BRONZE PROM RUBAIYAT	REBEL CARDINAL	BEAUREGARD BRONZE DELIGHT JETFIRE WIZARD CLIMAX
PINK	S				PINK PETER JOHN SHOESMITH SALMON	CALVERT'S PINK THANKS. PINK	IND. PINK PRINCESS ANNE PINK CHAMPAGNE ORCHID QUEEN NO. 2 DARK QUEEN
	P		ALVODA LYNDA McLANE	DEBUTANTE MINSTREL IMP. PINK MINSTREL BLUE MOON	DELMAR LEGEND SPLENDOR ROYAL PROM	DELMARVEL STACCATO FLAMENCO SIGNET PINK JUBILATION	DELIGHT OVERTURE CHEERFUL BRIGHT 'N CHEERFUL

S — Standard

P — Pompon



Year-Round Cut Flower Schedule

BLOOM — DECEMBER 30, 1963

LATITUDE	PLANT	PINCH*	LIGHTING PERIOD	START SHADE	RESPONSE GROUP
40 - 50°	AUG. 12	SEPT. 2	AUG. 26 - SEPT. 23	NO	14 WEEK
			AUG. 28 - SEPT. 30	NO	13 WEEK
			AUG. 12 - OCT. 7	NO	12 WEEK
			AUG. 12 - OCT. 14	NO	11 WEEK
			AUG. 12 - OCT. 21	NO	10 WEEK
35 - 40°	AUG. 19	SEPT. 9	AUG. 26 - SEPT. 23	NO	14 WEEK
			AUG. 19 - SEPT. 30	NO	13 WEEK
			AUG. 19 - OCT. 7	NO	12 WEEK
			AUG. 19 - OCT. 14	NO	11 WEEK
			AUG. 19 - OCT. 21	NO	10 WEEK
30 - 35°	AUG. 26	SEPT. 16	AUG. 26 - SEPT. 30	NO	13 WEEK
			AUG. 26 - OCT. 7	NO	12 WEEK
			AUG. 26 - OCT. 14	NO	11 WEEK
			AUG. 26 - OCT. 21	NO	10 WEEK
25 - 30°	SEPT. 2	SEPT. 23	SEPT. 2 - OCT. 7	NO	12 WEEK
			SEPT. 2 - OCT. 14	NO	11 WEEK
			SEPT. 2 - OCT. 21	NO	10 WEEK

BLOOM — JANUARY 6, 1964

40 - 50°	AUG. 19	SEPT. 9	AUG. 26 - SEPT. 30	NO	14 WEEK
			AUG. 19 - OCT. 7	NO	13 WEEK
			AUG. 19 - OCT. 14	NO	12 WEEK
			AUG. 19 - OCT. 21	NO	11 WEEK
			AUG. 19 - OCT. 28	NO	10 WEEK
35 - 40°	AUG. 26	SEPT. 16	AUG. 26 - SEPT. 30	NO	14 WEEK
			AUG. 26 - OCT. 7	NO	13 WEEK
			AUG. 26 - OCT. 14	NO	12 WEEK
			AUG. 26 - OCT. 21	NO	11 WEEK
			AUG. 26 - OCT. 28	NO	10 WEEK
30 - 35°	AUG. 26	SEPT. 16	AUG. 26 - OCT. 7	NO	13 WEEK
			AUG. 26 - OCT. 14	NO	12 WEEK
			AUG. 26 - OCT. 21	NO	11 WEEK
			AUG. 26 - OCT. 28	NO	10 WEEK
25 - 30°	SEPT. 9	SEPT. 30	SEPT. 9 - OCT. 14	NO	12 WEEK
			SEPT. 9 - OCT. 21	NO	11 WEEK
			SEPT. 9 - OCT. 28	NO	10 WEEK

BLOOM — JANUARY 13, 1964

40 - 50°	AUG. 26	SEPT. 16	AUG. 26 - OCT. 7	NO	14 WEEK
			AUG. 26 - OCT. 14	NO	13 WEEK
			AUG. 26 - OCT. 21	NO	12 WEEK
			AUG. 26 - OCT. 28	NO	11 WEEK
			AUG. 26 - NOV. 4	NO	10 WEEK
35 - 40°	SEPT. 2	SEPT. 23	SEPT. 2 - OCT. 7	NO	14 WEEK
			SEPT. 2 - OCT. 14	NO	13 WEEK
			SEPT. 2 - OCT. 21	NO	12 WEEK
			SEPT. 2 - OCT. 28	NO	11 WEEK
			SEPT. 2 - NOV. 4	NO	10 WEEK
30 - 35°	SEPT. 2	SEPT. 23	SEPT. 2 - OCT. 14	NO	13 WEEK
			SEPT. 2 - OCT. 21	NO	12 WEEK
			SEPT. 2 - OCT. 28	NO	11 WEEK
			SEPT. 2 - NOV. 4	NO	10 WEEK
25 - 30°	SEPT. 16	OCT. 7	SEPT. 16 - OCT. 21	NO	12 WEEK
			SEPT. 16 - OCT. 28	NO	11 WEEK
			SEPT. 16 - NOV. 4	NO	10 WEEK

BLOOM — JANUARY 20, 1964

40 - 50°	SEPT. 2	SEPT. 23	SEPT. 2 - OCT. 14	NO	14 WEEK
			SEPT. 2 - OCT. 21	NO	13 WEEK
			SEPT. 2 - OCT. 28	NO	12 WEEK
			SEPT. 2 - NOV. 4	NO	11 WEEK
			SEPT. 2 - NOV. 11	NO	10 WEEK
35 - 40°	SEPT. 9	SEPT. 30	SEPT. 9 - OCT. 15	NO	14 WEEK
			SEPT. 9 - OCT. 21	NO	13 WEEK
			SEPT. 9 - OCT. 28	NO	12 WEEK
			SEPT. 9 - NOV. 4	NO	11 WEEK
			SEPT. 9 - NOV. 11	NO	10 WEEK
30 - 35°	SEPT. 9	SEPT. 30	SEPT. 9 - OCT. 21	NO	13 WEEK
			SEPT. 9 - OCT. 28	NO	12 WEEK
			SEPT. 9 - NOV. 4	NO	11 WEEK
			SEPT. 9 - NOV. 11	NO	10 WEEK
25 - 30°	SEPT. 16	OCT. 7	SEPT. 16 - OCT. 28	NO	12 WEEK
			SEPT. 16 - NOV. 4	NO	11 WEEK
			SEPT. 16 - NOV. 11	NO	10 WEEK

* For No Pinch Method: Plant and Light on Pinch Date

		14 WEEK	13 WEEK	12 WEEK	11 WEEK	10 WEEK
WHITE	S			IMP. WH. PETER JOHN		GIANT NO. 4 IND. WHITE CRYSTAL QUEEN MEFO FRED SHOESMITH TOKYO
	P	SILVERSMITH SNOWCAP ICEBREAKER	ICECAP ACCLAIM ILLINI ALBA ICEFLO SATELLITE SNOWCREST		BRIDE DIVINITY JUPITER SCULPTURE BELRAY SURFSIDE	ICEBERG ILLINI IGLOO SHASTA STARDUST ILLINI SNOWDRIFT
YELLOW	S			YELLOW PETER JOHN		GIANT NO. 4 IND. YELLOW IMP. IND. YELLOW GOL. YEL. PRINC. ANNE YELLOW QUEEN NO. 2 YEL. SHOESMITH IMP. YELLOW MEFO YELLOW KNIGHT
	P	ILL. BRIGHTYES SUN VALLEY	KINGPIN CORONATION GOL. ACCLAIM SPUNGOLD CORSAIR GOLDFLO	OMEGA YELLOW GALAXY BOREALIS	HIGHBALL OLD GOLD SOUVENIR SHANE ILLINI GOLDRIFT STARFLITE	YEL. BEAUREGARD NO. 2 YEL. ICEBERG LIGHT YELLOW ICEBERG GOLDEN SHASTA YELLOW IGLOO HEYDAY
BRONZE & RED	S			IMP. BR. PETER JOHN	VALENTINE	MAPLE LEAVES NO. 2 IND. BRONZE FLAXEN PRINCESS ANNE BR. PRINCESS ANNE COPPER QUEEN BLAZE
	P	BRONZE ALVODA MERRYMAKER	BEAU BRUMMELL	GALAXY CRACKERJACK RED GALAXY DRAGON	TAN VEDOVA CARDINAL REBEL BRONZE VENOYA	BEAUREGARD BRONZE DELIGHT
PINK	S			PINK PETER JOHN	THANKSGIVING PINK	IND. PINK PRINCESS ANNE ORCHID QUEEN NO. 2 DARK QUEEN PINK CHAMPAGNE
	P	ALVODA DARK ALVODA	DEBUTANTE	HI-FI LEGEND DELMAR SPLENDOR ROYAL	SIGNET DELMARVEL VEDOVA VENOYA	DELIGHT CHEERFUL BRIGHT 'N CHEERFUL

S — Standard

P — Pompon

BLOOM — JANUARY 27, 1964

LATITUDE	PLANT	PINCH*	LIGHTING PERIOD	START SHADE	RESPONSE GROUP
40 - 50°	SEPT. 2	SEPT. 23	SEPT. 2 - OCT. 28 SEPT. 2 - NOV. 4 SEPT. 2 - NOV. 11 SEPT. 2 - NOV. 18	NO NO NO NO	13 WEEK 12 WEEK 11 WEEK 10 WEEK
35 - 40°	SEPT. 9	SEPT. 30	SEPT. 9 - OCT. 28 SEPT. 9 - NOV. 4 SEPT. 9 - NOV. 11 SEPT. 9 - NOV. 18	NO NO NO NO	13 WEEK 12 WEEK 11 WEEK 10 WEEK
30 - 35°	SEPT. 16	OCT. 7	SEPT. 16 - OCT. 28 SEPT. 16 - NOV. 4 SEPT. 16 - NOV. 11 SEPT. 16 - NOV. 18	NO NO NO NO	13 WEEK 12 WEEK 11 WEEK 10 WEEK
25 - 30°	SEPT. 23	OCT. 14	SEPT. 23 - NOV. 4 SEPT. 23 - NOV. 11 SEPT. 23 - NOV. 18	NO NO NO	12 WEEK 11 WEEK 10 WEEK

BLOOM — FEBRUARY 3, 1964

40 - 50°	SEPT. 9	SEPT. 30	SEPT. 9 - NOV. 4 SEPT. 9 - NOV. 11 SEPT. 9 - NOV. 18 SEPT. 9 - NOV. 25	NO NO NO NO	13 WEEK 12 WEEK 11 WEEK 10 WEEK
35 - 40°	SEPT. 16	OCT. 7	SEPT. 16 - NOV. 4 SEPT. 16 - NOV. 11 SEPT. 16 - NOV. 18 SEPT. 16 - NOV. 25	NO NO NO NO	13 WEEK 12 WEEK 11 WEEK 10 WEEK
30 - 35°	SEPT. 23	OCT. 14	SEPT. 23 - NOV. 4 SEPT. 23 - NOV. 11 SEPT. 23 - NOV. 17 SEPT. 23 - NOV. 25	NO NO NO NO	13 WEEK 12 WEEK 11 WEEK 10 WEEK
25 - 30°	SEPT. 30	OCT. 21	SEPT. 30 - NOV. 18 SEPT. 30 - NOV. 25	NO NO	11 WEEK 10 WEEK

BLOOM — FEBRUARY 10, 1964

40 - 50°	SEPT. 9	SEPT. 30	SEPT. 9 - NOV. 11 SEPT. 9 - NOV. 18 SEPT. 9 - NOV. 25 SEPT. 9 - DEC. 2	NO NO NO NO	13 WEEK 12 WEEK 11 WEEK 10 WEEK
35 - 40°	SEPT. 16	OCT. 7	SEPT. 16 - NOV. 11 SEPT. 16 - NOV. 18 SEPT. 16 - NOV. 25 SEPT. 16 - DEC. 2	NO NO NO NO	13 WEEK 12 WEEK 11 WEEK 10 WEEK
30 - 35°	SEPT. 30	OCT. 21	SEPT. 30 - NOV. 18 SEPT. 30 - NOV. 25 SEPT. 30 - DEC. 2	NO NO NO	12 WEEK 11 WEEK 10 WEEK
25 - 30°	OCT. 7	OCT. 28	OCT. 7 - NOV. 25 OCT. 7 - DEC. 2	NO NO	11 WEEK 10 WEEK

BLOOM — FEBRUARY 17, 1964

40 - 50°	SEPT. 16	OCT. 7	SEPT. 16 - NOV. 18 SEPT. 16 - NOV. 25 SEPT. 16 - DEC. 2 SEPT. 16 - DEC. 9	NO NO NO NO	13 WEEK 12 WEEK 11 WEEK 10 WEEK
35 - 40°	SEPT. 23	OCT. 14	SEPT. 23 - NOV. 25 SEPT. 23 - DEC. 2 SEPT. 23 - DEC. 9	NO NO NO	12 WEEK 11 WEEK 10 WEEK
30 - 35°	OCT. 7	OCT. 28	OCT. 7 - NOV. 25 OCT. 7 - DEC. 2 OCT. 7 - DEC. 9	NO NO NO	12 WEEK 11 WEEK 10 WEEK
25 - 30°	OCT. 14	NOV. 4	OCT. 14 - DEC. 2 OCT. 14 - DEC. 9	NO NO	11 WEEK 10 WEEK

* For No Pinch Method: Plant and Light on Pinch Date

		13 WEEK	12 WEEK	11 WEEK	10 WEEK
WHITE	S				GIANT NO. 4 IND. WHITE CRYSTAL QUEEN MEFO FRED SHOESMITH TOKYO
	P	ICECAP ACCLAIM ILLINI ALBA ICEFLO SATELLITE SNOWCREST		BRIDE DIVINITY JUPITER SCULPTURE BELRAY SURFSIDE	ICEBERG ILLINI IGLOO SHASTA STARDUST ILLINI SNOWDRIFT
YELLOW	S				GIANT NO. 4 IND. YELLOW IMP. YELLOW MEFO IMP. IND. YELLOW GOL. YEL. PRINC. ANNE YELLOW QUEEN NO. 2 YEL. SHOESMITH YELLOW KNIGHT
	P	KINGPIN CORONATION GOLD. ACCLAIM SPUNGOLD CORSAIR GOLDFLO	OMEGA YELLOW GALAXY BOREALIS	HIGHBALL OLD GOLD SOUVENIR SHANE ILLINI GOLDRIFT STARFLITE	YELLOW BEAUREGARD NO. 2 YEL. ICEBERG LIGHT YELLOW ICEBERG GOLDEN SHASTA YELLOW IGLOO HEYDEY
BRONZE & RED	S				MAPLE LEAVES NO. 2 IND. BRONZE FLAXEN PRINCESS ANNE BR. PRINCESS ANNE COPPER QUEEN BLAZE
	P		GALAXY CRACKERJACK DRAGON RED GALAXY	TAN VEDOVA CARDINAL REBEL	BEAUREGARD BRONZE DELIGHT
PINK	S				IND. PINK PRINCESS ANNE ORCHID QUEEN NO. 2 DARK QUEEN PINK CHAMPAGNE
	P	DEBUTANTE	HI-FI LEGEND DELMAR SPLENDOR ROYAL	SIGNET DELMARVEL VEDOVA VENOYA	DELIGHT CHEERFUL BRIGHT 'N CHEERFUL

S — Standard

P — Pompon

BLOOM — FEBRUARY 24, 1964

LATITUDE	PLANT	PINCH*	LIGHTING PERIOD	START SHADE	RESPONSE GROUP
40 - 50°	SEPT. 23	OCT. 14	SEPT. 23 - DEC. 2 SEPT. 25 - DEC. 9 SEPT. 23 - DEC. 16	NO NO NO	12 WEEK 11 WEEK 10 WEEK
35 - 40°	SEPT. 30	OCT. 21	SEPT. 30 - DEC. 2 SEPT. 30 - DEC. 9 SEPT. 30 - DEC. 16	NO NO NO	12 WEEK 11 WEEK 10 WEEK
30 - 35°	OCT. 14	NOV. 4	OCT. 14 - DEC. 2 OCT. 14 - DEC. 9 OCT. 14 - DEC. 16	NO NO NO	12 WEEK 11 WEEK 10 WEEK
25 - 30°	OCT. 21	NOV. 11	OCT. 21 - DEC. 9 OCT. 21 - DEC. 16	NO NO	11 WEEK 10 WEEK

BLOOM — MARCH 2, 1964

40 - 50°	SEPT. 30	OCT. 21	SEPT. 30 - DEC. 9 SEPT. 30 - DEC. 16 SEPT. 30 - DEC. 23	NO NO NO	12 WEEK 11 WEEK 10 WEEK
35 - 40°	OCT. 7	OCT. 28	OCT. 7 - DEC. 9 OCT. 7 - DEC. 16 OCT. 7 - DEC. 23	NO NO NO	12 WEEK 11 WEEK 10 WEEK
30 - 35°	OCT. 21	NOV. 11	OCT. 21 - DEC. 9 OCT. 21 - DEC. 16 OCT. 21 - DEC. 23	NO NO NO	12 WEEK 11 WEEK 10 WEEK
25 - 30°	OCT. 28	NOV. 18	OCT. 28 - DEC. 16 OCT. 28 - DEC. 23	NO NO	11 WEEK 10 WEEK

BLOOM — MARCH 9, 1964

40 - 50°	OCT. 7	OCT. 28	OCT. 7 - DEC. 16 OCT. 7 - DEC. 23 OCT. 7 - DEC. 30	NO NO NO	12 WEEK 11 WEEK 10 WEEK
35 - 40°	OCT. 21	NOV. 11	OCT. 21 - DEC. 16 OCT. 21 - DEC. 23 OCT. 21 - DEC. 30	NO NO NO	12 WEEK 11 WEEK 10 WEEK
30 - 35°	OCT. 28	NOV. 18	OCT. 28 - DEC. 23 OCT. 28 - DEC. 30	NO NO	11 WEEK 10 WEEK
25 - 30°	NOV. 11	DEC. 2	NOV. 11 - DEC. 23 NOV. 11 - DEC. 30	NO NO	11 WEEK 10 WEEK

BLOOM — MARCH 16, 1964

40 - 50°	OCT. 14	NOV. 4	OCT. 14 - DEC. 23 OCT. 14 - DEC. 30 OCT. 14 - JAN. 6	NO NO NO	12 WEEK 11 WEEK 10 WEEK
35 - 40°	OCT. 28	NOV. 18	OCT. 28 - DEC. 30 OCT. 28 - JAN. 6	NO NO	11 WEEK 10 WEEK
30 - 35°	NOV. 4	NOV. 25	NOV. 4 - DEC. 30 NOV. 4 - JAN. 6	NO NO	11 WEEK 10 WEEK
25 - 30°	NOV. 18	DEC. 9	NOV. 18 - DEC. 30 NOV. 18 - JAN. 6	NO NO	11 WEEK 10 WEEK

* For No Pinch Method: Plant and Light on Pinch Date

		12 WEEK	11 WEEK	10 WEEK
WHITE	S			GIANT NO. 4 IND. WHITE CRYSTAL QUEEN MEFO FRED SHOESMITH TOKYO
	P		BRIDE DIVINITY WHITE TAFFETA SCULPTURE JUPITER SURFSIDE BELRAY	ICEBERG ILLINI IGLOO SHASTA CORONADO STARDUST CLOUDBURST
YELLOW	S			GIANT NO. 4 IND. YELLOW IMP. YELLOW MEFO IMP. IND. YELLOW GOL. YEL. PRINC. ANNE YELLOW QUEEN NO. 2 YELLOW SHOESMITH YELLOW KNIGHT
	P	ILLINI WAMPUM OMEGA YELLOW GALAXY	HIGHBALL OLD GOLD ETUDE SOUVENIR SHANE ILLINI GOLDRIFT STARFLITE	YELLOW BEAUREGARD NO. 2 YELLOW ICEBERG LIGHT YELLOW ICEBERG GOLDEN SHASTA YELLOW IGLOO HEYDEY
BRONZE & RED	S			MAPLE LEAVES NO. 2 IND. BRONZE FLAXEN PRINCESS ANNE BR. PRINCESS ANNE COPPER QUEEN BLAZE
	P	GALAXY CRACKERJACK DRAGON RED GALAXY	BEAUREGARD SUPREME BR. JUBILATION THELMA CARDINAL REBEL OLNURA	BEAUREGARD BRONZE DELIGHT CLIMAX
PINK	S			IND. PINK PRINCESS ANNE ORCHID QUEEN NO. 2 DARK QUEEN PINK CHAMPAGNE
	P	HI-FI LEGEND DELMAR SPLENDOR ROYAL	SIGNET PINK JUBILATION DELMARVEL BLUE SKIES STACCATO	DELIGHT PORTRAIT CHEERFUL BRIGHT 'N CHEERFUL

S — Standard

P — Pompon

BLOOM — MARCH 23, 1964

LATITUDE	PLANT	PINCH*	LIGHTING PERIOD	START SHADE	RESPONSE GROUP
40 - 50°	OCT. 28	NOV. 18	OCT. 28 - JAN. 6 OCT. 28 - JAN. 13	NO NO	11 WEEK 10 WEEK
35 - 40°	NOV. 4	NOV. 25	NOV. 4 - JAN. 6 NOV. 4 - JAN. 13	NO NO	11 WEEK 10 WEEK
30 - 35°	NOV. 18	DEC. 9	NOV. 18 - JAN. 13	NO	10 WEEK
25 - 30°	NOV. 25	DEC. 16	NOV. 25 - JAN. 13 NOV. 25 - JAN. 20 NOV. 25 - JAN. 27	NO NO NO	10 WEEK 9 WEEK 8 WEEK

BLOOM — MARCH 30, 1964

40 - 50°	NOV. 4	NOV. 25	NOV. 4 - JAN. 20	NO	10 WEEK
35 - 40°	NOV. 11	DEC. 2	NOV. 11 - JAN. 20	NO	10 WEEK
30 - 35°	NOV. 25	DEC. 16	NOV. 25 - JAN. 20 NOV. 25 - JAN. 27	NO NO	10 WEEK 9 WEEK
25 - 30°	DEC. 2	DEC. 23	DEC. 2 - JAN. 20 DEC. 2 - JAN. 27 DEC. 2 - FEB. 3	NO NO NO	10 WEEK 9 WEEK 8 WEEK

BLOOM — APRIL 6, 1964

40 - 50°	NOV. 11	DEC. 2	NOV. 11 - JAN. 27 NOV. 11 - FEB. 3	NO NO	10 WEEK 9 WEEK
35 - 40°	NOV. 18	DEC. 9	NOV. 18 - JAN. 27 NOV. 18 - FEB. 3	NO NO	10 WEEK 9 WEEK
30 - 35°	DEC. 2	DEC. 23	DEC. 2 - JAN. 27 DEC. 2 - FEB. 3 DEC. 2 - FEB. 10	NO NO NO	10 WEEK 9 WEEK 8 WEEK
25 - 30°	DEC. 16	JAN. 6	DEC. 16 - JAN. 27 DEC. 16 - FEB. 3 DEC. 16 - FEB. 10	NO NO NO	10 WEEK 9 WEEK 8 WEEK

BLOOM — APRIL 13, 1964

40 - 50°	NOV. 18	DEC. 9	NOV. 18 - FEB. 3 NOV. 18 - FEB. 10	MAR. 16 MAR. 23	10 WEEK 9 WEEK
35 - 40°	DEC. 2	DEC. 23	DEC. 2 - FEB. 3 DEC. 2 - FEB. 10	MAR. 16 MAR. 23	10 WEEK 9 WEEK
30 - 35°	DEC. 9	DEC. 30	DEC. 9 - FEB. 3 DEC. 9 - FEB. 10 DEC. 9 - FEB. 17	MAR. 16 MAR. 23 NO	10 WEEK 9 WEEK 8 WEEK
25 - 30°	DEC. 23	JAN. 13	DEC. 23 - FEB. 3 DEC. 23 - FEB. 10 DEC. 23 - FEB. 17	MAR. 16 MAR. 23 NO	10 WEEK 9 WEEK 8 WEEK

BLOOM — APRIL 20, 1964

40 - 50°	DEC. 2	DEC. 30	DEC. 2 - FEB. 10 DEC. 2 - FEB. 17 DEC. 2 - FEB. 24	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK
35 - 40°	DEC. 9	JAN. 6	DEC. 9 - FEB. 10 DEC. 9 - FEB. 17 DEC. 9 - FEB. 24	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK
30 - 35°	DEC. 16	JAN. 6	DEC. 16 - FEB. 10 DEC. 16 - FEB. 17 DEC. 16 - FEB. 24	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK
25 - 30°	DEC. 30	JAN. 20	DEC. 30 - FEB. 10 DEC. 30 - FEB. 17 DEC. 30 - FEB. 24	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK

* For No Pinch Method: Plant and Light on Pinch Date

		11 WEEK	10 WEEK	9 WEEK	8 WEEK
WHITE	S		GIANT NO. 4 IND. WHITE CRYSTAL QUEEN MEFO FRED SHOESMITH TOKYO	DONLOPE'S WH. SP. NO. 2 D'NL'P'S WH. SP. QUEEN'S LACE	WHITE PINK CHIEF
	P	BRIDE DIVINITY LIGHTNING WHITE TAFFETA SCULPTURE JUPITER SURFSIDE PARAMOUNT BELRAY	SOVEREIGN HURRICANE PING PONG ICEBERG CLOUDBURST DAWN STAR CORONADO ILLINI IGLOO SHASTA WHITE SANDS STARDUST ILLINI SNOWDRIFT BONNIE JEAN	WHITE KEEPSAKE	
YELLOW	S		GIANT NO. 4 IND. YELLOW IMP. IND. YELLOW EXPLORER GOL. YEL. PRINC. ANNE YELLOW QUEEN IMP. YELLOW MEFO NO. 2 YEL. SHOESMITH YELLOW KNIGHT	LUYONA GOLD LACE	BLAZING GOLD BUTTERBALL
	P	HIGHBALL OLD GOLD YELLOW ETUDE SOUVENIR YELLOW SCULPTURE SHANE ILLINI GOLDRIFT LOLLIPOP PIPPIN STARFLITE	TOPAZ NO. 2 YELLOW ICEBERG LIGHT YELLOW ICEBERG YELLOW BEAUREGARD GOLDEN CRYSTAL GOLDEN SHASTA HEYDAY JACKSTRAW GOLDEN STARDUST YELLOW IGLOO YELLOW BONNIE JEAN	YELLOW KEEPSAKE	
BRONZE & RED	S		MAPLE LEAVES NO. 2 IND. BRONZE FLAXEN PRINCESS ANNE BR. PRINCESS ANNE COPPER QUEEN BLAZE		MAYFORD TITAN
	P	BEAUREGARD SUP. THELMA CARDINAL REBEL OLNURA	RED JETFIRE BRONZE DELIGHT BEAUREGARD CLIMAX NO. 2 RED HUMDINGER		
PINK	S		IND. PINK PRINCESS ANNE ORCHID QUEEN NO. 2 DARK QUEEN PINK CHAMPAGNE	BUNBU MISS AMERICA	PINK CHIEF
	P	SIGNET DELMARVEL PINK JUBILATION BLUE SKIES STACCATO FLAMENCO	DELIGHT OVERTURE PORTRAIT EXCELLO CHEERFUL BRIGHT 'N CHEERFUL		

BLOOM — APRIL 27, 1964

LATITUDE	PLANT	PINCH*	LIGHTING PERIOD	START SHADE	RESPONSE GROUP
40 - 50°	DEC. 9	JAN. 6	DEC. 9 - FEB. 17 DEC. 9 - FEB. 24 DEC. 9 - MAR. 2	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK
35 - 40°	DEC. 16	JAN. 13	DEC. 16 - FEB. 17 DEC. 16 - FEB. 24 DEC. 16 - MAR. 2	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK
25 - 35°	JAN. 6	JAN. 27	JAN. 6 - FEB. 17 JAN. 6 - FEB. 24 JAN. 6 - MAR. 2	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK

BLOOM — MAY 4, 1964

40 - 50°	DEC. 16	JAN. 13	DEC. 16 - FEB. 24 DEC. 16 - MAR. 2 DEC. 16 - MAR. 9	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK
35 - 40°	DEC. 23	JAN. 20	DEC. 23 - FEB. 24 DEC. 23 - MAR. 2 DEC. 23 - MAR. 9	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK
25 - 35°	JAN. 13	FEB. 3	JAN. 13 - FEB. 24 JAN. 13 - MAR. 2 JAN. 13 - MAR. 9	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK

BLOOM — MAY 11, 1964

40 - 50°	DEC. 23	JAN. 21	DEC. 23 - MAR. 2 DEC. 23 - MAR. 9 DEC. 23 - MAR. 16	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK
35 - 40°	DEC. 30	JAN. 28	DEC. 30 - MAR. 2 DEC. 30 - MAR. 9 DEC. 30 - MAR. 16	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK
25 - 35°	JAN. 20	FEB. 10	JAN. 20 - MAR. 2 JAN. 20 - MAR. 9 JAN. 20 - MAR. 16	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK

BLOOM — MAY 18, 1964

40 - 50°	JAN. 6	FEB. 3	JAN. 6 - MAR. 9 JAN. 6 - MAR. 16 JAN. 6 - MAR. 23	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK
25 - 40°	JAN. 6	FEB. 3	JAN. 6 - MAR. 9 JAN. 6 - MAR. 16 JAN. 6 - MAR. 23	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK

BLOOM — MAY 25, 1964

40 - 50°	JAN. 13	FEB. 10	JAN. 13 - MAR. 16 JAN. 13 - MAR. 23 JAN. 13 - MAR. 30	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK
25 - 40°	JAN. 20	FEB. 10	JAN. 20 - MAR. 16 JAN. 20 - MAR. 23 JAN. 20 - MAR. 30	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK

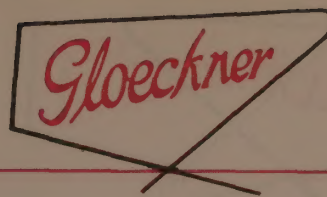
BLOOM — JUNE 1, 1964

25 - 50°	JAN. 27	FEB. 17	JAN. 27 - MAR. 23 JAN. 27 - MAR. 30 JAN. 27 - APR. 6	MAR. 23 MAR. 30 APR. 6	10 WEEK 9 WEEK 8 WEEK
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BLOOM — JUNE 8, 1964

25 - 50°	FEB. 3	FEB. 24	FEB. 3 - MAR. 30 FEB. 3 - APR. 6 FEB. 3 - APR. 13	MAR. 30 APR. 6 APR. 13	10 WEEK 9 WEEK 8 WEEK
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* For No Pinch Method: Plant and Light on Pinch Date



		10 WEEK	9 WEEK	8 WEEK
WHITE	S	GIANT NO. 4 IND. WHITE CRYSTAL QUEEN FRED SHOESMITH COLUMBIA TOKYO	DONLOPE'S WH. SP. NO. 2 DONLOPE'S WH. SP. QUEEN'S LACE	WHITE PINK CHIEF SILVER SHEEN
	P	SOVEREIGN HURRICANE PING PONG ICEBERG CYCLONE CLOUDBURST DAWNSTAR CORONADO ILLINI IGLOO SHASTA WHITE SAND STARDUST ILLINI SNOWDRIFT BONNIE JEAN	SILVERTONE CLOUDBANK WHITE POPCORN WHITE KEEPSAKE PINOCCHIO ALABASTER MEMENTO HALO ALASKA THISTLEDOWN THUNDERBOLT	ECHO BLIZZARD PRISTINE
YELLOW	S	GIANT NO. 4 IND. YELLOW IMP. IND. YELLOW IND. GOLD EXPLORER GOL. YEL. PRINCESS ANNE YELLOW QUEEN NO. 2 YEL. SHOESMITH YELLOW KNIGHT	MECCA LUYONA GOLD LACE	BLAZING GOLD BUTTERBALL
	P	TOPAZ GOLDEN BANTAM YELLOW BEAUREGARD NO. 2 YEL. ICEBERG LIGHT YELLOW ICEBERG GOLDEN CRYSTAL JACKSTRAW GOLDEN SHASTA YELLOW IGLOO HEYDAY GOLDEN STARDUST YEL. ILL. SNOWDRIFT YELLOW VISCOUNT YELLOW BONNIE JEAN	YEL. KEEPSAKE GOLD COAST HAPPINESS SUNBEAM NO. 2 DANDY STATESMAN BRILLIANCY YELLOWCHIP	YELLOW CALUMET TOPFLIGHT
BRONZE & RED	S	DK. IND. BRONZE NOMAGO FLAXEN PRINCESS ANNE BR. PRINCESS ANNE COPPER QUEEN BLAZE	SYMBOL FRED YULE CHAMBRIER	AMBER BRIGHT MAYFORD TITAN
	P	TUNEFUL BRONZE DELIGHT DILLON BEAUREGARD WIZARD GILTGLow	GAITY BUCKSKIN BRONZCHIP COPPERCHIP TANFASTIC	CALUMET DARK CALUMET
PINK	S	IND. PINK PRINCESS ANNE NO. 2 DARK QUEEN	BUNBU MISS AMERICA	PINK CHIEF
	P	DELIGHT OVERTURE VALIANT EXCELLO CHEERFUL BRIGHT 'N CHEERFUL	BLUECHIP PEARL CHIP CHERRY CHIP DARKCHIP PINK MARBLE AMBROSIA	ENTERPRISE ACCOLADE MIRTH

BLOOM	LATITUDE	PLANT	PINCH*	LIGHTING PERIOD	START SHADE	RESPONSE GROUP
— JUNE 15, 1964						
	25 - 50°	FEB. 17	MAR. 9	FEB. 17 - APR. 6 FEB. 17 - APR. 13 FEB. 17 - APR. 20	APR. 6 APR. 13 APR. 20	10 WEEK 9 WEEK 8 WEEK
— JUNE 22, 1964						
	25 - 50°	FEB. 24	MAR. 16	FEB. 24 - APR. 13 FEB. 24 - APR. 20 FEB. 24 - APR. 27	APR. 13 APR. 20 APR. 27	10 WEEK 9 WEEK 8 WEEK
— JUNE 29, 1964						
	25 - 50°	MAR. 2	MAR. 23	MAR. 2 - APR. 20 MAR. 2 - APR. 27 MAR. 2 - MAY 4	APR. 20 APR. 27 MAY 4	10 WEEK 9 WEEK 8 WEEK
— JULY 6, 1964						
	25 - 50°	MAR. 16	APR. 6	MAR. 16 - APR. 27 MAR. 16 - MAY 4 MAR. 16 - MAY 11	APR. 27 MAY 4 MAY 11	10 WEEK 9 WEEK 8 WEEK
— JULY 13, 1964						
	25 - 50°	MAR. 23	APR. 13	MAR. 23 - APR. 27 MAR. 23 - MAY 4 MAR. 23 - MAY 11	MAY 4 MAY 11 MAY 18	10 WEEK 9 WEEK 8 WEEK
— JULY 20, 1964						
	25 - 50°	MAR. 30	APR. 20	MAR. 30 - APR. 27 MAR. 30 - MAY 4 MAR. 30 - MAY 11	MAY 11 MAY 18 MAY 25	10 WEEK 9 WEEK 8 WEEK
— JULY 27, 1964						
	25 - 50°	APR. 6	APR. 27	APR. 6 - APR. 27 APR. 6 - MAY 4 APR. 6 - MAY 11	MAY 18 MAY 25 JUNE 1	10 WEEK 9 WEEK 8 WEEK
— AUGUST 3, 1964						
	25 - 50°	APR. 13	MAY 4	APR. 13 - APR. 27 APR. 13 - MAY 4 APR. 13 - MAY 11	MAY 25 JUNE 1 JUNE 8	10 WEEK 9 WEEK 8 WEEK
— AUGUST 10, 1964						
	25 - 50°	APR. 20	MAY 11	APR. 20 - APR. 27 APR. 20 - MAY 4 APR. 20 - MAY 11	JUNE 1 JUNE 8 JUNE 15	10 WEEK 9 WEEK 8 WEEK
— AUGUST 17, 1964						
	25 - 50°	APR. 27	MAY 18		JUNE 8 JUNE 15 JUNE 22	10 WEEK 9 WEEK 8 WEEK
— AUGUST 24, 1964						
	25 - 50°	MAY 11	MAY 25		JUNE 15 JUNE 22 JUNE 29	10 WEEK 9 WEEK 8 WEEK
— AUGUST 31, 1964						
	25 - 50°	MAY 18	JUNE 1		JUNE 22 JUNE 29 JULY 6	10 WEEK 9 WEEK 8 WEEK

* For No Pinch Method: Plant and Light on Pinch Date

		10 WEEK	9 WEEK	8 WEEK
WHITE	S	GIANT BETSY ROSS THE FAVOURITE TOKYO	MARBLEHEAD DONLOPE'S WH. SP. QUEEN'S LACE THEMESONG	WH. PINK CHIEF SILVER SHEEN
	P	SOVEREIGN HURRICANE PING PONG CYCLONE ICEBERG SNOW CRYSTAL DAWN STAR CORONADO ILLINI IGLOO VISCOUNT SHASTA WHITE SANDS STARDUST ILLINI SNOWDRIFT BONNIE JEAN	SILVERTONE CLOUDBANK POPCORN WHITE POPCORN KEEPSAKE PINOCCHIO ALABASTER MEMENTO ALASKA THISTLEDOWN NO. 2 WHITECHIP THUNDERBOLT	ECHO BLIZZARD PRISTINE
YELLOW	S	YELLOW BETSY ROSS GOL. YEL. PRINCESS ANNE YELLOW KNIGHT	GOLDEN MARBLEHEAD LUYONA GOOD NEWS GOLDEN BOY	AMBER BRIGHT BLAZING GOLD BUTTERBALL
	P	TOPAZ CRESCENDO YELLOW BEAUREGARD NO. 2 YELLOW ICEBERG LIGHT YELLOW ICEBERG GOLDEN CRYSTAL GOLDEN SHASTA YELLOW IGLOO YEL. ILL. SNOWDRIFT YELLOW VISCOUNT YELLOW BONNIE JEAN IMPERIAL	YEL. KEEPSAKE HAPPINESS SUNBEAM NO. 2 DANDY STATESMAN YELLOWCHIP	YELLOW CALUMET TOPFLIGHT
BRONZE & RED	S	FLAXEN PRINCESS ANNE BR. PRINCESS ANNE	SYMBOL FRED YULE	
	P	RED JETFIRE DILLION BEAUREGARD WIZARD	BRONZE DOT BUCKSKIN COPPERCHIP	CALUMET DARK CALUMET
PINK	S	LAUGHTER	BUNBU MISS AMERICA	
	P	OVERTURE VALIANT EXCELLO	PINKETTE REWARD BLUECHIP DARKCHIP CHERRYCHIP	MIRTH

S — Standard

P — Pompon

The varieties suggested in our schedule are not a complete listing of what can be used. They are suggested as the best varieties from our experience and observations in the various latitudes. This listing is kept up to date. We delete any varieties that have not maintained high standards. Careful selection of newer varieties based on their detailed description can be extremely valuable in balancing out a program. We attempt to constantly keep you informed on these new varieties.

It is normal for crops at some times of the year to "beat" the schedules—as well as take longer at other times of the year. If your crops are consistently faster than the schedules, then you may consider your light and growing conditions to permit you to use the schedules for the next lower latitude.

Varieties suitable for this program include not only a number of popular standard types such as the Indianapolis group, but also numerous large flowered pompon, single, decoratives, and anemone types, which, when disbudded to one flower, result in three to four inch blooms, this being the size range that is generally sought for. Stem lengths generally range from 24 to 30 inches.

Why are They Becoming Popular?

First of all, they are distinctively beautiful and versatile in their use. The chrysanthemum, as is known in European floriculture, is devoted exclusively to these intermediate to large disbuds. It is thought that this method of culture partly resulted because the greatest percentage of flowers produced are purchased directly for home use. Thus, they can justifiably be called "Home-size-mums" with great future potential as we on the North American continent look forward to an expansion in our present home markets. The retail designer will use them to the same advantage as he does a carnation or a snapdragon because of their individuality in arrangement, but will favor the disbudded mum because of its rigid durability both in handling and in keeping qualities.

Efficient Croppers and Money Makers for the Producer

The schedule allows for approximately 3 and 1/3 crops to be produced on a given bench area within a 52-week period which will produce a total of 36 to 40 individual flowers per sq. ft. As markets are both developed and educated to absorb these shorter stemmed disbuds, even greater efficiencies in reducing total crop time will be possible.

How are They Grown?

Spacing—Allowing a minimum of 12 sq. inches for each flowering stem during the higher light periods of the year ranging to a maximum of 15 to 18 sq. inches per stem during the lowest and poorest light periods, has been found to be sufficiently adequate to produce this crop.

Since this crop is to be pinched, the recommendation is to plant either 4" x 6" apart and prune each plant to two stems or plant 6" x 6" and prune each plant to three stems.

Optimum grade uniformity is generally achieved by permitting only two stems to remain on each plant. This procedure is specifically recommended when the large standards types of mums (Indianapolis, etc.) are to be

grown in this fast schedule, whereas many of the intermediate type disbud varieties will readily support three stems per plant. Either method of handling will provide the same total production per given sq. ft. of bench area.



MARKET PACK OF FAST DISBUD

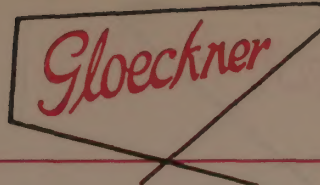
RECOMMENDED SPACING

Summer Flowering	6"x4"	Two stems per plant
Spring & Fall	6"x5"	Two stems per plant
Winter Flowering	6"x6"	Two stems per plant

Pruning—Selecting the two or three most uniformly vigorous shoots on each pinched plant and removing the remaining or extra breaks should be done at the earliest possible time. If growth is freely active, this pruning operation can be done 10 to 14 days after the pinch. Careless delay in the pruning operation will shorten the height of the crop below that which is normally possible with the given schedule.

Disbudding—Much like the pruning operation. In order to achieve maximum flower development and size, select the one flowering bud, usually the terminal bud, early, whenever the side buds are firm and can be rolled or snapped off easily.

Cultural Pointers—The principles of growing Fast Disbuds as related to soils, planting, fertilizing, temperature, water, insect and disease control, are essentially the same as are recommended and required in the production of a regular scheduled crop of either pompons or standards.



FAST DISBUDS AND FAST SPRAYS

FLOWER	PLANT	PINCH	LIGHTING PERIOD	START SHADE	RESPONSE GROUP
APRIL 22, 1963	DEC. 31	JAN. 28	DEC. 31 – FEB. 11 DEC. 31 – FEB. 18 DEC. 31 – FEB. 25	MAR. 18 MAR. 25 APR. 1	10 WEEK 9 WEEK 8 WEEK
APRIL 29, 1963	JAN. 7	FEB. 4	JAN. 7 – FEB. 18 JAN. 7 – FEB. 25 JAN. 7 – MAR. 4	MAR. 18 MAR. 25 APR. 1	10 WEEK 9 WEEK 8 WEEK
MAY 6, 1963	JAN. 14	FEB. 11	JAN. 14 – FEB. 25 JAN. 14 – MAR. 4 JAN. 14 – MAR. 11	MAR. 18 MAR. 25 APR. 1	10 WEEK 9 WEEK 8 WEEK
MAY 13, 1963	JAN. 21	FEB. 18	JAN. 21 – MAR. 4 JAN. 21 – MAR. 11 JAN. 21 – MAR. 18	MAR. 18 MAR. 25 APR. 1	10 WEEK 9 WEEK 8 WEEK
MAY 20, 1963	FEB. 4	FEB. 25	FEB. 4 – MAR. 11 FEB. 4 – MAR. 18 FEB. 4 – MAR. 25	MAR. 18 MAR. 25 APR. 1	10 WEEK 9 WEEK 8 WEEK
MAY 27, 1963	FEB. 11	MAR. 4	FEB. 11 – MAR. 18 FEB. 11 – MAR. 25 FEB. 11 – APR. 1	MAR. 18 MAR. 25 APR. 1	10 WEEK 9 WEEK 8 WEEK
JUNE 3, 1963	FEB. 18	MAR. 11	FEB. 18 – MAR. 25 FEB. 18 – APR. 1 FEB. 18 – APR. 8	MAR. 25 APR. 1 APR. 8	10 WEEK 9 WEEK 8 WEEK
JUNE 10, 1963	FEB. 25	MAR. 18	FEB. 25 – APR. 1 FEB. 25 – APR. 8 FEB. 25 – APR. 15	APR. 1 APR. 8 APR. 5	10 WEEK 9 WEEK 8 WEEK
JUNE 17, 1963	MAR. 11	APR. 1	MAR. 11 – APR. 9 MAR. 11 – APR. 15 MAR. 11 – APR. 22	APR. 8 APR. 15 APR. 22	10 WEEK 9 WEEK 8 WEEK
JUNE 24, 1963	MAR. 18	APR. 8	MAR. 25 – APR. 15 MAR. 25 – APR. 22 MAR. 25 – APR. 29	APR. 15 APR. 22 APR. 29	10 WEEK 9 WEEK 8 WEEK

VARIETIES IN RESPONSE GROUPS

	10 WEEK	9 WEEK	8 WEEK
WHITE	IND. WHITE IMP. IND. WHITE IND. NO. 3 WHITE ICEBERG	SILVER BOW MARBLEHEAD DONLOPE'S WHITE SPIDER QUEEN'S LACE	WHITE PINK CHIEF
YELLOW	IMP. IND. YELLOW GOLDEN YEL. PRINCESS ANNE CREAM YEL. PRINCESS ANNE YELLOW KNIGHT YELLOW ICEBERG	GOLDEN HERALD YELLOW BOW LUYONA GOLD LACE GOLDEN MARBLEHEAD	HARVEST GOLDEN
BRONZE & RED	NO. 2 IND. BRONZE DARK IND. BRONZE DAYBREAK FLAXEN PRINCESS ANNE BRONZE PRINCESS ANNE	SUNDOWN SYMBOL DUCHESS FRED YULE CHAMBRIER	AMBER BRIGHT MAYFORD TITAN
PINK	IND. PINK VANGUARD PLUM PRINCESS ANNE BLUEBIRD ROSAMUND	BLUE RIBBON BUNBU MISS AMERICA	PINK CHIEF

FAST DISBUDS AND FAST SPRAYS

FLOWER	PLANT	PINCH	LIGHTING PERIOD	START SHADE	RESPONSE GROUP
JULY 1, 1963	MAR. 25	APR. 15	MAR. 25 - APR. 22 MAR. 25 - APR. 29 MAR. 25 - APR. 29	APR. 22 APR. 29 MAY 6	10 WEEK 9 WEEK 8 WEEK
JULY 8, 1963	APR. 8	APR. 29	APR. 8 - APR. 29 APR. 8 - MAY 6 APR. 8 - MAY 13	APR. 29 MAY 6 MAY 13	10 WEEK 9 WEEK 8 WEEK
JULY 15, 1963	APR. 15	MAY 6	APR. 15 - MAY 6 APR. 15 - MAY 15 APR. 15 - MAY 20	MAY 6 MAY 13 MAY 20	10 WEEK 9 WEEK 8 WEEK
JULY 22, 1963	APR. 22	MAY 13	APR. 22 - MAY 13 APR. 22 - MAY 20 APR. 22 - MAY 27	MAY 13 MAY 20 MAY 27	10 WEEK 9 WEEK 8 WEEK
JULY 29, 1963	APR. 29	MAY 13	NO	MAY 20 MAY 27 JUNE 3	10 WEEK 9 WEEK 8 WEEK
AUGUST 5, 1963	MAY 6	MAY 20	NO	MAY 27 JUNE 3 JUNE 10	10 WEEK 9 WEEK 8 WEEK
AUGUST 12, 1963	MAY 13	MAY 27	NO	JUNE 3 JUNE 10 JUNE 17	10 WEEK 9 WEEK 8 WEEK
AUGUST 19, 1963	MAY 20	JUNE 3	NO	JUNE 10 JUNE 17 JUNE 24	10 WEEK 9 WEEK 8 WEEK
AUGUST 25, 1963	MAY 27	JUNE 10	NO	JUNE 17 JUNE 24 JULY 1	10 WEEK 9 WEEK 8 WEEK

VARIETIES IN RESPONSE GROUPS

	10 WEEK	9 WEEK	8 WEEK
WHITE	IND. WHITE IMP. IND. WHITE IND. NO. 3 WHITE	SILVER BOW MARBLEHEAD DONLOPE'S WHITE SPIDER QUEEN'S LACE THEMESONG	WHITE PINK CHIEF
YELLOW	IMP. IND. YELLOW LUXURY GOLDEN YEL. PRINCESS ANNE CREAM YEL. PRINCESS ANNE YELLOW KNIGHT	GOLDEN HERALD GOLDEN MARBLEHEAD YELLOW BOW LUYONA GOLD LACE	
BRONZE & RED	DAYBREAK GOLDEN GATE BRONZE PRINCESS ANNE	SYMBOL SUNDOWN FRED YULE	AMBER BRIGHT
PINK	VANGUARD LAUGHTER BLUEBIRD	BUNBU MISS AMERICA	

FAST DISBUDS AND FAST SPRAYS

FLOWER	PLANT	PINCH	LIGHTING PERIOD	START SHADE	RESPONSE GROUP
SEPTEMBER 2, 1963	JUNE 3	JUNE 17	NO	JUNE 24 JULY 1 JULY 8	10 WEEK 9 WEEK 8 WEEK
SEPTEMBER 9, 1963	JUNE 10	JUNE 24	NO	JULY 1 JULY 8 JULY 15	10 WEEK 9 WEEK 8 WEEK
SEPTEMBER 16, 1963	JUNE 17	JULY 1	NO	JULY 8 JULY 15 JULY 22	10 WEEK 9 WEEK 8 WEEK
SEPTEMBER 23, 1963	JUNE 24	JULY 8	NO	JULY 15 JULY 22 JULY 29	10 WEEK 9 WEEK 8 WEEK
SEPTEMBER 30, 1963	JUNE 24	JULY 8	NO	JULY 22 JULY 29 AUG. 5	10 WEEK 9 WEEK 8 WEEK
OCTOBER 7, 1963	JULY 1	JULY 15	NO	JULY 22 JULY 29 AUG. 5	11 WEEK 10 WEEK 9 WEEK
OCTOBER 14, 1963	JULY 8	JULY 22	NO	JULY 29 AUG. 5 AUG. 12	11 WEEK 10 WEEK 9 WEEK
OCTOBER 21, 1963	JULY 15	JULY 29	NO	AUG. 5 AUG. 12 AUG. 19	11 WEEK 10 WEEK 9 WEEK

VARIETIES IN RESPONSE GROUPS

	11 WEEK	10 WEEK	9 WEEK	8 WEEK
WHITE	ERMINE JOHN BAUMANN	IND. WHITE IMP. IND. WHITE IND. NO. 3. WHITE ICEBERG	SILVER BOW MARBLEHEAD DONLOPE'S WH. SPIDER QUEEN'S LACE THEMESONG	WHITE PINK CHIEF
YELLOW	SHANE SULTAN	IMP. IND. YELLOW YELLOW ICEBERG GOLDEN YEL. PRINCESS ANNE CREAM YEL. PRINCESS ANNE YELLOW KNIGHT	GOLDEN HERALD YELLOW BOW LUYONA GOLD LACE GOLDEN MARBLEHEAD	HARVEST GOLDEN
BRONZE & RED	VALENTINE OLNURA TAN VEDOVA	NO. 2 IND. BRONZE DARK IND. BRONZE DAYBREAK WOKING SCARLET BRONZE PRINCESS ANNE FLAXEN PRINCESS ANNE	SYMBOL FRED YULE IVANHOE CHAMBRIER DUCHESS	AMBER BRIGHT
PINK	VEDOVA VENOYA THANKS. PINK	IND. PINK VANGUARD PLUM BLUEBIRD PRINCESS ANNE ROSAMUND	BUNBU MISS AMERICA	PINK CHIEF

FAST DISBUDS AND FAST SPRAYS

FLOWER	PLANT	PINCH	LIGHTING PERIOD	START SHADE	RESPONSE GROUP
OCTOBER 28, 1963	JULY 15	JULY 29	NO NO	AUG. 12 NO	11 WEEK 10 WEEK
NOVEMBER 4, 1963	JULY 22	AUG. 5	NO JULY 31 - AUG. 6	AUG. 19 NO	11 WEEK 10 WEEK
NOVEMBER 11, 1963	JULY 29	AUG. 12	NO NO JULY 31 - SEPT. 2	AUG. 20 NO NO	12 WEEK 11 WEEK 10 WEEK
NOVEMBER 18, 1963	AUG. 5	AUG. 19	NO AUG. 5 - SEPT. 2 AUG. 5 - SEPT. 9	NO NO NO	12 WEEK 11 WEEK 10 WEEK
NOVEMBER 25, 1963	AUG. 12	AUG. 26	AUG. 12 - SEPT. 2 AUG. 12 - SEPT. 9 AUG. 12 - SEPT. 16	NO NO NO	12 WEEK 11 WEEK 10 WEEK
DECEMBER 2, 1963	AUG. 12	AUG. 26	AUG. 12 - SEPT. 9 AUG. 12 - SEPT. 26 AUG. 12 - SEPT. 23	NO NO NO	12 WEEK 11 WEEK 10 WEEK
DECEMBER 9, 1963	AUG. 19	SEPT. 9	AUG. 19 - SEPT. 16 AUG. 19 - SEPT. 23 AUG. 19 - SEPT. 30	NO NO NO	12 WEEK 11 WEEK 10 WEEK
DECEMBER 16, 1963	AUG. 26	SEPT. 16	AUG. 26 - SEPT. 23 AUG. 26 - SEPT. 30 AUG. 26 - OCT. 7	NO NO NO	12 WEEK 11 WEEK 10 WEEK
DECEMBER 23, 1963	SEPT. 2	SEPT. 23	SEPT. 2 - SEPT. 30 SEPT. 2 - OCT. 7 SEPT. 2 - OCT. 14	NO NO NO	12 WEEK 11 WEEK 10 WEEK

VARIETIES IN RESPONSE GROUPS

	12 WEEK	11 WEEK	10 WEEK
WHITE	IMP. WHITE PETER JOHN WHITE VALENCIA DECEMBER GLORY	ERMINE JOHN BAUMANN	IMP. IND. WHITE IND. NO. 3 WHITE
YELLOW	YELLOW PETER JOHN NO. 2 YELLOW GLORY YELLOW VALENCIA	SHANE SULTAN	GOLDEN YEL. PRINCESS ANNE CREAM YEL. PRINCESS ANNE IMP. IND. YELLOW IND. YELLOW YELLOW KNIGHT
BRONZE & RED	IMP. BRONZE PETER JOHN APRICOT VALENCIA	VALENTINE OLNURA TAN VEDOVA	IND. BRONZE NO. 2 IND. BRONZE WOKING SCARLET FLAXEN PRINCESS ANNE
PINK	PINK PETER JOHN ROYAL VALENCIA	VEDOVA VENOYA THANKS. PINK	IND. PINK PLUM LAUGHTER PRINCESS ANNE

FAST DISBUDS AND FAST SPRAYS

FLOWER	PLANT	PINCH	LIGHTING PERIOD	START SHADE	RESPONSE GROUP
DECEMBER 30, 1963	SEPT. 2	SEPT. 23	SEPT. 2 - OCT. 7 SEPT. 2 - OCT. 14 SEPT. 2 - OCT. 21	NO NO NO	12 WEEK 11 WEEK 10 WEEK
JANUARY 6, 1964	SEPT. 9	SEPT. 30	SEPT. 9 - OCT. 14 SEPT. 9 - OCT. 21 SEPT. 9 - OCT. 28	NO NO NO	12 WEEK 11 WEEK 10 WEEK
JANUARY 13, 1964	SEPT. 16	OCT. 7	SEPT. 16 - OCT. 21 SEPT. 16 - OCT. 28 SEPT. 16 - NOV. 4	NO NO NO	12 WEEK 11 WEEK 10 WEEK
JANUARY 20, 1964	SEPT. 23	OCT. 14	SEPT. 23 - OCT. 28 SEPT. 23 - NOV. 4 SEPT. 23 - NOV. 11	NO NO NO	12 WEEK 11 WEEK 10 WEEK
JANUARY 27, 1964	SEPT. 23	OCT. 14	SEPT. 23 - NOV. 4 SEPT. 23 - NOV. 11 SEPT. 23 - NOV. 18	NO NO NO	12 WEEK 11 WEEK 10 WEEK
FEBRUARY 3, 1964	SEPT. 30	OCT. 21	SEPT. 30 - NOV. 11 SEPT. 30 - NOV. 18 SEPT. 30 - NOV. 25	NO NO NO	12 WEEK 11 WEEK 10 WEEK
FEBRUARY 10, 1964	SEPT. 30	OCT. 21	SEPT. 30 - NOV. 18 SEPT. 30 - NOV. 25 SEPT. 30 - DEC. 2	NO NO NO	12 WEEK 11 WEEK 10 WEEK
FEBRUARY 17, 1964	OCT. 7	OCT. 28	OCT. 7 - NOV. 25 OCT. 7 - DEC. 2 OCT. 7 - DEC. 9	NO NO NO	12 WEEK 11 WEEK 10 WEEK
FEBRUARY 24, 1964	OCT. 14	NOV. 4	OCT. 14 - DEC. 2 OCT. 14 - DEC. 9 OCT. 14 - DEC. 16	NO NO NO	12 WEEK 11 WEEK 10 WEEK

VARIETIES IN RESPONSE GROUPS

	12 WEEK	11 WEEK	10 WEEK
WHITE	IMP. WHITE PETER JOHN ILLINI GLACIER	ERMINE JOHN BAUMANN	IMP. IND. WHITE IND. NO. 3 WHITE
YELLOW	YELLOW PETER JOHN NO. 2 YELLOW GLORY	SHANE	GOLDEN YEL. PRINCESS ANNE CREAM YEL. PRINCESS ANNE IMP. IND. YELLOW LUYONA
BRONZE & RED	IMP. BRONZE PETER JOHN	VALENTINE OLNURA TAN VEDOVA	IND. BRONZE NO. 2 IND. BRONZE WOKING SCARLET FLAXEN PRINCESS ANNE
PINK	PINK PETER JOHN ROYAL	VEDOVA VENOYA THANKS. PINK	IND. PINK ROSAMUND LAUGHTER PRINCESS ANNE

FAST DISBUDS AND FAST SPRAYS

FLOWER	PLANT	PINCH	LIGHTING PERIOD	START SHADE	RESPONSE GROUP
MARCH 2, 1964	OCT. 21	NOV. 11	OCT. 21 - DEC. 16 OCT. 21 - DEC. 23 OCT. 21 - DEC. 30	NO NO NO	11 WEEK 10 WEEK 9 WEEK
MARCH 9, 1964	OCT. 28	NOV. 25	OCT. 28 - DEC. 23 OCT. 28 - DEC. 30 OCT. 28 - JAN. 6	NO NO NO	11 WEEK 10 WEEK 9 WEEK
MARCH 16, 1964	NOV. 4	DEC. 2	NOV. 4 - DEC. 30 NOV. 4 - JAN. 6 NOV. 4 - JAN. 13	NO NO NO	11 WEEK 10 WEEK 9 WEEK
MARCH 23, 1964	NOV. 18	DEC. 16	NOV. 18 - JAN. 6 NOV. 18 - JAN. 13 NOV. 18 - JAN. 20	NO NO NO	11 WEEK 10 WEEK 9 WEEK
MARCH 30, 1964	NOV. 25	DEC. 23	NOV. 25 - JAN. 20 NOV. 25 - JAN. 27 NOV. 25 - FEB. 3	NO NO NO	10 WEEK 9 WEEK 8 WEEK
APRIL 6, 1964	DEC. 9	JAN. 6	DEC. 9 - JAN. 27 DEC. 9 - FEB. 3 DEC. 9 - FEB. 10	NO NO NO	10 WEEK 9 WEEK 8 WEEK
APRIL 13, 1964	DEC. 16	JAN. 13	DEC. 16 - FEB. 3 DEC. 16 - FEB. 10 DEC. 16 - FEB. 17	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK
APRIL 20, 1964	DEC. 30	JAN. 27	DEC. 30 - FEB. 11 DEC. 30 - FEB. 17 DEC. 30 - FEB. 24	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK
APRIL 27, 1964	JAN. 6	FEB. 3	JAN. 6 - FEB. 17 JAN. 6 - FEB. 24 JAN. 6 - MAR. 2	MAR. 16 MAR. 23 MAR. 30	10 WEEK 9 WEEK 8 WEEK

VARIETIES IN RESPONSE GROUPS

	11 WEEK	10 WEEK	9 WEEK	8 WEEK
WHITE	ERMINE JOHN BAUMANN	IND. WHITE IMP. IND. WHITE IND. NO. 3 WHITE ICEBERG	DONLOPE'S WH. SPIDER QUEEN'S LACE	WHITE PINK CHIEF
YELLOW	SHANE	IMP. IND. YELLOW YELLOW ICEBERG YELLOW KNIGHT GOLDEN YEL. PRINCESS ANNE CREAM YEL. PRINCESS ANNE	LUYONA GOLD LACE	
BRONZE & RED	VALENTINE OLNURA TAN VEDOVA	DARK IND. BRONZE DAYBREAK WOKING SCARLET FLAXEN PRINCESS ANNE BRONZE PRINCESS ANNE APRICOT PRINCESS ANNE	DUCHESS CHAMBRIER	AMBER BRIGHT MAYFORD TITAN
PINK	VEDOVA VENOYA	IND. PINK PLUM LAUGHTER PRINCESS ANNE ROSAMUND	BLUE RIBBON BUNBU DARK RIBBON	PINK CHIEF

A Versatile Crop

The continual flow of Chrysanthemum pot plants, flowering on weekly schedules, is a major source of income for wholesale plant growers. Similarly, retail growers on a smaller scale find that regular scheduling provides them with a constant supply of good merchandise for day-to-day sales, either as a pot plant, or to cut for design and arrangement work. For year-round dependability this crop has no equal, thanks to the information developed and disseminated by the specialists, plus on-time delivery of chrysanthemum cuttings making it possible to have the finished plants blooming on schedule week after week.

On the following pages are set down many of the points requisite to good pot plant culture. Experience has shown, however, that it takes more than good information to produce quality plants. Careful attention to details and doing each job on time . . . when it will do the most good . . . are things that mark a grower and his crops as above average. In competitive marketing this has a good deal to do with profits.

Potting Soil

The variety of soils and soil mixtures successfully used indicate a fair amount of tolerance on the part of the plant, and leeway for the grower. However, regardless of the soil or the finished soil mixture, the grower has to regulate his watering and fertilizing to fit the soil mixture he uses. For that reason it is of paramount importance that the soil and mixture be consistent week after week, otherwise one will be in and out of trouble as often as mixtures are changed.

A loamy top soil is a good starting point. Use with this at least one-third rotted manure or German peat, or a combination of the two. Unless the top soil is particularly loose and drains rapidly, the mixture can be improved by the addition of sand or Perlite. A little experimentation on amounts of various additives is time well spent in obtaining a good growing mixture. Once this is determined, be sure that subsequent mixtures have precisely the same ingredients.

In line with this consistency of mixtures is the use of a uniform drainage material. Plastic Aerodrain provides this consistency better than broken pots, trap rock or coarse gravel, and are inexpensive. Also, they require less space and provide a maximum volume of soil for the plant.

Good results have been obtained in some locales using such materials as peanut hulls, sawdust, wood shavings



THE NEW POLYSTYRENE BADGER POT

and leafmold, in lieu of peatmoss or manure. Since some of these materials draw upon the nitrogen supply in the mixture, it may be necessary to counteract this by starting nitrogen feeding with the initial watering of the crop.

In this age of chemical agriculture it is more than an academic reminder to caution about using soils or soil piles that have been treated with weed killers; or manures that have been treated with disinfectants.

Planting

Plant shallow; never set the cuttings deeper than they were in the propagating medium. Do not try to "even" a pot by putting taller cuttings deeper than they should be planted. Planting too deep only encourages stem rots and causes delays and unevenness in the establishment of the young plants.

Water promptly after planting. Plants that retain their turgidity are off to a better start and a more promising future than those that wilt for several days before remaining turgid. Temporary cheese cloth shelters, using the shade cloth supports, are set up by some growers for the first few days to aid in getting the plants off to a good start. An intermittent mist area is often more successfully used for this purpose.

Cuttings should be panned direct, planting all cuttings in a circle near the rim of the pot, rather than some outside and one or more in the center. Planting cuttings on an



FRESHLY PLANTED POT



WELL GRADED CUTTINGS

angle generally increases the number of breaks that develop from the initial pinch.

Watering

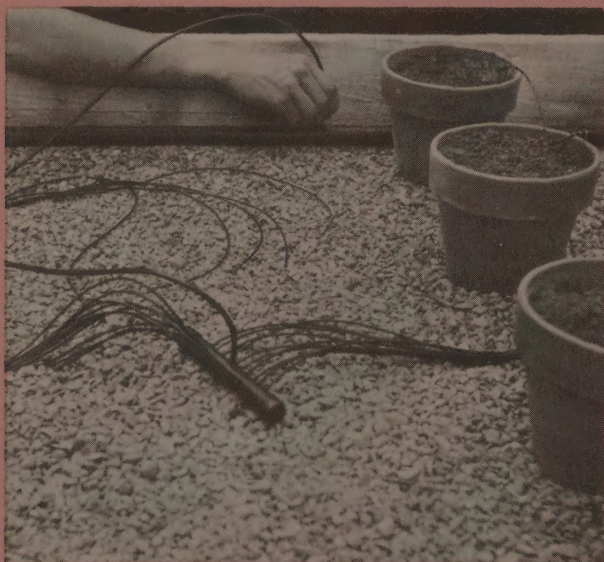
Correct watering starts with properly moistened soil for potting. If too dry, the cuttings suffer and are slow in establishing. If too wet, the potter experiences difficulty in handling and winds up with a spotty, uneven job of planting. Experienced growers are aware of these problems and make it a point to control moisture in their soil piles.

Watering the growing crop is made easier or more difficult by the nature of the potting soil mixture. Soils that drain readily are less troublesome than tight soils. Although chrysanthemums are a versatile crop, overwatering can kill off roots just as certainly as it can with lilies or poinsettias. On the other extreme, and particularly with the modern procedures of growing each crop on a fast and tight schedule, allowing excessive drying can substantially reduce flower size, amount of foliage, and number of breaks.

Automatic watering of potted plants, such as that provided by Chapin WATERMATICS, is undergoing trial in a number of establishments. Reduction of labor costs in watering is a major reason for efforts in this direction. Also, it must be remembered that one of the most common complaints of management is the lack of skilled and discerning help to do a satisfactory job of hand watering. If these complaints can be taken literally, then it should be possible to develop automatic watering techniques to do as well or better than the average hand watering jobs. Automatic watering is not a substitute for constant crop inspection by a qualified grower.

Growers who have adopted automatic watering have noted:

- (1) a more uniform growth due to the absence of moisture variations among pots.
- (2) less foliar disease problems since foliage is always dry.
- (3) a general improvement in quality brought about by increased attention to other growing details using time formerly required for watering.



SETTING UP CHAPIN SYSTEM

From the standpoint of general pot plant culture, it would appear that the impact of automatic pot watering will be equal to the impact of automatic intermittent mist on the propagation industry.

Northern growers who have changed over from setting their plants on fine gravel or other materials, and now set the pots directly on smooth-surfaced concrete with a very slight pitch, say it is easier to control soil moisture and thus cut down the hazards of overwatering. Any changes that promote excellent drainage and aeration, whether by loosening soil mixtures or by providing fast runaway below the pots, simplify the watering problems, manual or automatic

Fertilizing

Fertilizing programs may vary, but they have a common goal: to constantly maintain adequate fertility levels, **from the time the cuttings are panned until the consumer has had the maximum enjoyment from the flowering plant.**

The advantages of liquid fertilization over dry feeding include lower labor costs and greater uniformity of application. Liquid fertilization as practiced today can be broken down into two general classifications: (1) Constant fertilization by injecting small amounts of fertilizer into the water lines so that the plants are fed lightly with each watering; (2) Weekly feeding with a liquid fertilizer of greater strength than that used in constant feeding.

Both methods are giving good results. The constant method, using a Fert-O-Ject, has some advantages: maintains more uniform nutrient levels, with no burning nor starvation; automatically supplies proper quantity of fertilizer the way plants use it . . . a little bit at a time; and, inexperienced help can apply fertilizer with no danger of burning plants because of dry soil.

In many ranges where liquid fertilization is the general rule, it has been found practical to incorporate enough superphosphate (dry) in the soil mixtures to give a Spurway reading of 5-10 p.p.m. With this phosphorus reserve, the liquid fertilization is then used primarily to supply nitrogen and potash. Under these conditions fertilizers with such ratios as 25-5-20, 25-10-10, 20-0-20 and 20-5-30 are used. This is possible because the phosphorus, unlike the nitrogen and potash, is fairly stable and does not readily leach out with each watering. The total cost of materials is less this way. When superphosphate is not incorporated into the soil mix, ratios such as 20-20-20 are used regularly, or alternated with such ratios as noted above.



CLOSEUP OF WATERING OPERATION

Regardless of the program used, it must be remembered that: (1) the frequent leachings pots get in watering require constant replacement of nutrients, and (2) the last feeding is as important as the first if the plant is to give the greatest satisfaction to the consumer.

Pinching

Since a major reason for pinching is to increase the number of flowers per plant, it is important that the pinch be made **where** it will result in the most breaks. Without exception this occurs with a "soft" or "roll-out" pinch. In other words, remove only the growing tip; never more than ½-inch of the stem tip. Be sure though that all of the tip is removed, not just a portion of leaf. Avoid the temptation to level off a pot of cuttings by pinching the taller ones harder than the short ones. Instead, pinch each cutting at the proper place, and the pot will finish with as much or more uniformity, and with more breaks.

The soft pinch should be made **only** on the new growth made after panning. If active growth does not occur, and the schedule calls for a pinch, it is better to delay the pinch until the plant has made sufficient new growth. The slight delay in flowering time is insignificant compared to the reduction in quality that results from improper pinching.

Timing Pinch and Short Days

In most localities the desirable height of the finished pot is between 17 to 20 inches overall. In order to achieve this height it is necessary to vary the pinch in relation to the beginning of short days according to each variety. All varieties are classed by their natural growing habits.

1. Tall Growing Varieties (varieties naturally flowering on stems 15 inches and over after short days have been applied.)

Treatment: Short days applied 10 to 14 days prior to pinching to reduce height. (Example: Princess Anne)

2. Medium Growing Varieties (varieties which naturally flower on stems no longer than 15 inches after short days have been applied.)

Treatment: Short days applied the date of pinching to maintain natural height. (Example: Bonaffon Deluxe)

3. Short Growing Varieties (varieties which naturally flower on stems under 15 inches after short days have been applied.)

Treatment: Short days applied after 7 to 14 long days following pinch have occurred to promote the additional stem growth needed. (Example: Delaware)

The year around schedule in this manual takes the above into consideration so that all plants should finish at approximately the same height. Check with your Gloeckner representative before scheduling your program. Seasonal and locality variations occur.

Single-Pinch Method

Considered the standard method, this system produces a mass of flowers on stock plants. Plant 5 or 6 rooted cuttings per 6-inch pot. Roll-pinch the plants in the soft growth according to the schedule found in the year-round program.



GOOD BREAKING POT



PINCHES IN HAND



KNIFE PINCHING



POT READY FOR DISBUDDING



POTS DISBUDDED AND SPACED

Two-Pinch Method

The most common method a few years ago and still used some for natural bloom, especially where larger plants are wanted. Plant 4 cuttings per 6-inch pots; 5 per 7-inch, or 7 in 8 inch pots. Pinch plants the first time 14 days after planting and wait 21 days and pinch the second time. Short-day treatment should start at the time of the second pinch.

Single Stem Method

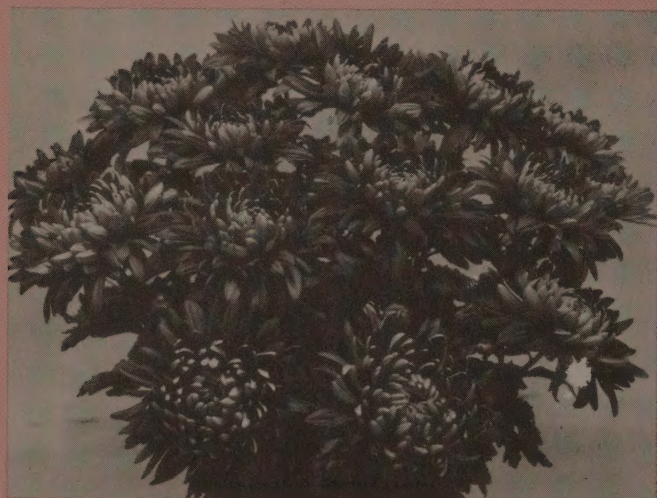
Plant 7 or 8 cuttings per 6-inch pot or 10 to 15 cuttings per 8-inch pot making sure they are uniformly graded prior to planting. Do not pinch. Start short-day treatment immediately. This permits a saving of one to three weeks growing time over the pinch method. Disbud to one bud per plant as early as possible. Total growing time is approximately equal to response classification of the variety. One advantage of the single-stem method crop is the increase of one more crop per year over the pinched crop system. Blooms will be very large and the stems will be much stronger than with pinched plants. Varieties recommended for single stem culture are: Malou, Mrs. Wolfe, Princess Anne, Clipper, Loubens, Red Star, and Vulcan.

To control height of taller growing varieties, especially in 6-inch pots, Phosphon can be used.

Premium Pot Mums

The trend in recent years toward smaller, less expensive pot mums to move through merchandising channels has resulted in neglecting some good higher-priced business in many localities. To regain this trade a few growers are now producing heavy, 8 inch pots the year around, using chiefly single-stem Indianapolis varieties. The Princess Anne varieties also make outstanding plants with this treatment. Some retail shops are now regular weekly and holiday buyers, where these choice pots have become a standard, available item.

The economics are as follows: cutting cost per pot of 8" is about three times that of pinched 6", using 15 cuttings instead of 5. However, the selling price has been approximately double, consistently. In the various growing stages a bench will take two thirds as many 8" as 6". Since the 8" single-stem Indianapolis are put under short-day treatment immediately after planting, they are ready to sell in 9 to 10 weeks; this in contrast to 11 to 13 weeks for average 6" pinched pots. No tranquilizers are used, but it is desirable to run somewhat on the dry side in the early stages to prevent damping off of those cuttings planted in the center of the large soil mass in 8" pots. The additional height, compared with 6" pinched pots, is in good proportion to the overall pot size.



SINGLE PINCHED DELAWARE



WELL ROOTED POT MUMS

Disbudding

The time of disbudding pot mums must be stressed. Late disbudding produces a shock to the plant that can affect flower size, timing and color. Several days delay in disbudding is equal to more than several days delay in flowering during high temperature periods of the year. Generally it is necessary to make two passes at disbudding; the first is made as soon as the terminal bud cluster has opened enough to permit side-bud removal without injury to the terminal bud. The second disbudding removes any lateral shoots that are stimulated into growth after removal of the first set of side buds. The commonly used garden varieties are not disbudded when they are used for Easter and Mothers' Day pots since the flower size is not large enough to make a show, and the beauty lies in the number of flowers contained on the bushy plants.

Lighting and Shading

Use the same procedures as for cut flowers outlined in this Manual. For dates for lighting and shading use the section on pot plant schedules.

Temperature

The optimum night temperature is 65 degrees F. Day temperatures should be 75 to 85 degrees F. when the light intensity is high and 70 degrees F. on cloudy days. Heat delay occurs when night temperatures reach 90 degrees or higher. This condition is similar to the check that results when plants are removed from the short-day treatment too early, when black cloth treatment is missed too often, or when old shading cloth is used.

Some of the delay may be overcome by placing black cloth over the plants with as much headroom as possible to increase air movement under the cloth. Ground beds with cloth placed 6 feet above pots is satisfactory. The only positive method to overcome this heat check is to install air conditioning to lower the temperatures. Where this is not possible, variety selection is extremely important.

Growing the crop at less than 65 degrees F. night temperature results in uneven and delayed flowering. A gradual temperature drop to 55 degrees F. after buds show color is recommended for most colored varieties.

Extreme fluctuation of night temperatures above 65 degrees F., and below 54 degrees F. will retard flowering especially in the later stages of bud development.

Shading the Glass

Usually a light shading of the glass is necessary during the Summer months, especially on plants approaching the finishing stages. However, if left on too late in the season, it can seriously impair the quality of Fall and early Winter crops. Heavy Winter shade reduces keeping quality of pots appreciably and is quite often the cause of black and sticking flower centers. Shade on the glass is sometimes more important for the comfort of the grower than for the requirements of the plants.

Phosfon—Chemical Height Control

This is the new chemical used to control the height of pot chrysanthemums. Plants so treated are shorter, more compact, and have darker green foliage than untreated plants. Phosfon does not produce phytotoxicity or affect the size or quality of blooms when used at recommended rates.

Varieties particularly benefited are the Lace and Princess Anne groups where the pinch and daylength adjustment do not provide sufficient control over height.

Phosfon is available either as a powder or liquid. Three methods of application have been tried: Mixing the powder or liquid solution with the soil, soaking the pots in the solution, or watering the solution on the soil at a specific growing stage. Arguments favor the latter method as being easier, permitting greater uniformity, and it gives the plant a chance to become established before the chemical produces an effect.

Application should be made after pinching. Treat pinched plants 1 to 10 days after the pinch for Spring, Summer and early Fall blooming, and 10 to 20 days after pinching for Winter bloom. Single stem pots treat about 10 days after potting.

Dissolve 1 level teaspoon of Phosfon D 10% powder in 6 quarts of hot water, or use 1 teaspoon of Phosfon L liquid 10% in six quarts of water.

Use 3 ounces of this solution for a 5" pot or 4 ounces for a 6" pot on varieties such as Princess Anne. Double this rate for the Lace varieties. Use half this rate on Delawares and Blue Ribbon.

Do not apply to dry soil. Be sure soil is moist. Keep the solution off the foliage. **DO NOT EXCEED RECOMMENDED RATES.** Apply drench only once.

Keep in mind that Phosfon treatment delays flowering time, somewhat. Also varieties differ in their response to Phosfon. High concentrates often cause brittleness of flower stem resulting in losses during handling. When first using Phosfon, do it on an experimental basis, not on an entire crop.

On exceptionally tall growing pot varieties and varieties normally considered cut standards the following treatment has been successful. Treat soil at recommended rate prior to planting or within ten days after planting. This treatment is followed by a second treatment at $\frac{1}{2}$ - $\frac{3}{4}$ the recommended rate when the plant is within 3-4 inches of the desired height. This is usually just prior to the disbudding stage. A partial list of some of the varieties that have responded well to this treatment are — Maple Leaves, Chambrier, Rayonnante varieties, John Baumann and Pink Champagne. It would appear that almost any variety with experimentation can be reduced sufficiently in height for pot culture.

Cycocel: A newer material, experimentally called C.-C.-C. but commercially named Cycocel is also available for controlling plant height. It is used at the rate of 1-quart to 10 gallons of water. This normally treats 200 — 6" pots.



WELL SPACED POT MUMS

Some Common Errors

1. Growing under too much shade or crowding plants.

During low light intensity periods of the year a minimum of 1½ square feet per 6-inch pot is required to finish a quality pot. Some larger growing varieties and double pinched plants require more space. Crowding results in spindlier plants, increased susceptibility to foliage and flower diseases, reduction in keeping quality, and yellowing and loss of lower foliage. Often these plants must be staked before they can be transported to the market. The Princess Anne varieties are particularly sensitive to crowding. Their normal tendency to grow tall is greatly accentuated when grown too close together at any stage.

Excessive shading from dirty glass or too much shading compound will produce similar results. Crowding or excessive shading produces a carbohydrate-deficient plant.

DON'T CROWD POT MUMS!

2. Loss of Root System:

The early loss of roots often causes a severe check resulting in the production of sub-standard pot mums. Frequently the check is not uniform within a pot causing the pot to be noticeably uneven. This is especially true if the loss is caused by excess fertilizer applications.

(a) By Excess Fertilizers

When excessively high soluble salt concentrations build up in the pots, both leaves and roots can be injured. Leaf margin burning is an expression of this damage.

Applying fertilizer to dry pots is often the cause of this injury.

Next to crowding, more pots are reduced in quality from excess fertilizer applications than any other cause.

(b) By Overwatering

Overwatering usually resulting from lack of proper drainage can cause loss of roots. Plunged pots are more easily overwatered than non-plunged and for that reason the bench on which plunging is being done should have excellent drainage.

3. Failure to disbud promptly:

Varieties differ in their response to late disbudding but generally the results are late flowering, color loss, and in some cases, ragged foliage resulting from injury incurred during disbudding procedure. Late disbudding on single-stem crops can contribute to undesirable height of finished plants and marked reductions in flower size and color.

4. Root pruning resulting in loss of keeping quality:

This type of injury most often occurs where plants are grown plunged until flowering and have not been turned regularly to maintain a root system within the pot. Plants that have been root-pruned are not able to maintain proper internal moisture relationship even when soil is wet. Frequently the buyer of such plants will complain of short life and the necessity of watering too often. Root-pruned plants will become nitrogen deficient very rapidly which also contributes to the lowering of general appearance and keeping quality of the pot.



PEDESTAL BENCHES ARE ECONOMICAL



SLEEVES MAKE THE BEST PACK

GARDEN MUM POT PLANTS FOR SPRING HOLIDAYS

Garden mum plants in full bloom make ideal potted plants for Mother's Day. This should be a valuable addition to the list of spring pot plants. For best results, 5 cuttings should be planted in a 6-inch pot or 2 cuttings in a 4-inch pot. After these pot plants are through flowering, they should be cut back to within 3 inches of the soil level and planted into the garden. These same plants will bloom again in the fall.

Many growers have greatly increased their sale of garden chrysanthemums by having collections in bloom during the spring season. Cuttings are planted one to a 3-inch or 3½-inch pot using the procedure outlined below for Single-Pinch Method.

Some growers flower the below varieties regularly with their normal pot program feeling it is a profitable item from the standpoint of shorter growing time and the absence of disbudding as well as the novelty of the varieties.

VARIETIES

White

DIAMOND
CHRIS COLUMBUS
OSTOSA
LARRY
JESSAMINE WILLIAMS
JOAN-ETTE
CORSAGE CUSHION

Yellow

YELLOW CHRIS
COLUMBUS
ASTORIA
KINGS RANSOM
GAY BLADE
ETHEL WATERS

Bronze & Red

DOLLI-ETTE
LIPSTICK
RADIANCE
MINNEHAHA
MESABI

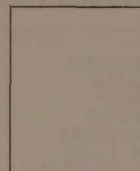
Bronze & Red
(contd.)

RED MISCHIEF
CHEYENNE
RUBY MOUND

Pink

ANN LADYGO
SPELLBOUND
MISCHIEF
JOYBRINGER
ALERT
FUCHSIA FAIRY
RASPBERRY ICE
MINNPINK
PURPLE WATERS
CECELIA
#2 FUCHSIA FAIRY
PINKNIFICENT

Price

The Care of
Hardy
Mums

I AM A HARDY MUM

when I am through blooming, cut me off about three inches above the pot. This will cause new growth to come up. Plant me outdoors in a permanent place and I'll bloom again this fall.

Plant	Lighting Period	Pinch	Shade	Bloom	
JAN. 28 JAN. 13	JAN. 28 - FEB. 18 JAN. 13 - JAN. 27	FEB. 18 JAN. 27	NO NO	EASTER	1963 APRIL 14 1964 MAR. 29
FEB. 25 MAR. 4 FEB. 24 MAR. 2	FEB. 25 - MAR. 11 NO FEB. 24 - MAR. 9 NO	MAR. 11 MAR. 18 MAR. 9 MAR. 16	APR. 1 NO APR. 1 NO	MOTHER'S DAY	1963 MAY 12 1963* MAY 12 1964 MAY 10 1964* MAY 10
MAR. 11 MAR. 18 MAR. 9 MAR. 16	MAR. 11 - MAR. 25 NO MAR. 9 - MAR. 23 NO	MAR. 25 MAR. 25 MAR. 23 MAR. 23	APR. 1 NO APR. 1 NO	MEMORIAL DAY	1963 MAY 30 1963* MAY 30 1964 MAY 30 1964* MAY 30

†For double-pinch method plant five weeks earlier and give first pinch seven days after planting. The second pinch should be made on the pinch date given in the single-pinch method. Be sure to light from the date of planting until date of second pinch.

*No light no shade method.

BLOOM Apr. 8 1963	VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
	S BONNAFFON DELUXE CLIPPER	DEC. 31	DEC. 31 - JAN. 21	JAN. 21	MAR. 11
	S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	DEC. 31	DEC. 31 - JAN. 28	JAN. 21	MAR. 18
	ACHIEVEMENT SPLURGE BLUE RIDGE	JAN. 7	JAN. 7 - JAN. 21	JAN. 28	MAR. 1
	S CHALK CLIFF SCEPTER RED STAR CRITERION PERSONALITY HUMDINGER	JAN. 7	JAN. 7 - JAN. 28	JAN. 28	MAR. 18
	S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	JAN. 7	JAN. 7 - FEB. 4	JAN. 28	NO
	S IND. VARIETIES ICE FOLLIES STARBURST S COMMANDER SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S PRINCESS ANNE CARESS	JAN. 14	JAN. 14 - JAN. 28	FEB. 4	MAR. 18
	MONTY QUICKSILVER SNOWCLAD DISCOVERY QUEEN OF PINKS	JAN. 14	JAN. 14 - FEB. 4	FEB. 4	NO
	BRIDESMAID BRONZE BRIDESMAID	JAN. 21	JAN. 21 - FEB. 4	FEB. 11	NO
	JOAN-ETTE GLORIA GARDENIA PEKING BLAZING GOLD CHEYENNE RADIANCE	JAN. 21	JAN. 21 - FEB. 11	FEB. 11	NO
	CORSAGE CUSHION OSTOSA LARRY CHRIS. COLUMBUS JESSAMINE WILLIAMS DIAMOND YEL. CHRIS. COLUMBUS GAY BLADE ASTORIA CHARLES NYE KINGS RANSOM ETHEL WATERS MINNEHAHA MESABI LIPSTICK REMEMBRANCE RED MISCHIEF DOLLI-ETTE RUBY MOUND RUSTIC MINNIPINK PURPLE WATERS SPELLBOUND CECELIA ANN LADYGO MISCHIEF JOYBRINGER RASPBERRY ICE ALERT NO. 2 FUCHSIA FAIRY JEWELTONE	JAN. 28	JAN. 28 - FEB. 18	FEB. 18	NO

S — For Single Stem Pots — Plant and Shade on Pinch Dates

BLOOM
Apr. 15
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S CRISTAL	JAN. 7	JAN. 7 - JAN. 28	JAN. 21	MAR. 11
S BONNAFFON DELUXE CLIPPER	JAN. 14	JAN. 14 - JAN. 28	JAN. 28	MAR. 11
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	JAN. 14	JAN. 14 - FEB. 4	JAN. 28	MAR. 18
ACHIEVEMENT SPLURGE BLUE RIDGE	JAN. 21	JAN. 21 - JAN. 28	FEB. 4	MAR. 11
S CHALK CLIFF SCEPTER RED STAR CRITERION PERSONALITY HUMDINGER	JAN. 21	JAN. 21 - FEB. 4	FEB. 4	MAR. 18
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	JAN. 21	JAN. 21 - FEB. 11	FEB. 4	MAR. 25
S IND. VARIETIES ICE FOLLIES SNOW CRYSTAL STARBURST S COMMANDER QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S PRINCESS ANNE CARESS	JAN. 28	JAN. 28 - FEB. 4	FEB. 11	MAR. 18
MONTY QUICKSILVER SNOWCLAD DISCOVERY QUEEN OF PINKS	JAN. 28	JAN. 28 - FEB. 11	FEB. 11	MAR. 25
BRIDESMAID BRONZE BRIDESMAID	FEB. 4	FEB. 4 - FEB. 11	FEB. 18	MAR. 25
JOAN-ETTE GLORIA GARDENIA PEKING BLAZING GOLD CHEYENNE RADIANCE PINKNIFICENT	FEB. 4	FEB. 4 - FEB. 18	FEB. 18	NO
CORSAGE CUSHION OSTOSA LARRY CHRIS. COLUMBUS JESSAMINE WILLIAMS DIAMOND YEL. CHRIS. COLUMBUS GAY BLADE ASTORIA CHARLES NYE KINGS RANSOM ETHEL WATERS MINNEHAHA MESABI LIPSTICK REMEMBRANCE RED MISCHIEF DOLLI-ETTE RUBY MOUND RUSTIC MINNPINK PURPLE WATERS SPELLBOUND CECELIA ANN LADYGO MISCHIEF JOYBRINGER RASPBERRY ICE ALERT NO. 2 FUCHSIA FAIRY JEWELTONE	FEB. 11	FEB. 11 - FEB. 25	FEB. 25	NO

BLOOM Apr. 22 1963	VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
	S CRISTAL	JAN. 14	JAN. 14 - FEB. 4	JAN. 28	MAR. 11
	S BONNAFFON DELUXE CLIPPER	JAN. 21	JAN. 21 - FEB. 4	FEB. 4	MAR. 11
	S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	JAN. 21	JAN. 21 - FEB. 11	FEB. 4	MAR. 18
	ACHIEVEMENT BLUE RIDGE	JAN. 28	JAN. 28 - FEB. 4	FEB. 11	MAR. 1
	S CHALK CLIFF SCEPTER RED STAR CRITERION PERSONALITY HUMDINGER	JAN. 28	JAN. 28 - FEB. 11	FEB. 11	MAR. 18
	S WILSON'S WHITE S MALDU S DARK WILSON'S YELLOW	JAN. 28	JAN. 28 - FEB. 18	FEB. 11	MAR. 25
	S IND. VARIETIES ICE FOLLIES STARBURST S COMMANDER SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S PRINCESS ANNE S CARESS	FEB. 4	FEB. 4 - FEB. 11	FEB. 18	MAR. 18
	MONTY QUICKSILVER SNOWCLAD DISCOVERY QUEEN OF PINKS	FEB. 4	FEB. 4 - FEB. 18	FEB. 18	MAR. 25
	BRIDESMAID	FEB. 11	FEB. 11 - FEB. 18	FEB. 25	MAR. 25
	JOAN-ETTE GLORIA GARDENIA PEKING BLAZING GOLD CHEYENNE RADIANCE PINKNIFICENT	FEB. 11	FEB. 11 - FEB. 25	FEB. 25	APR. 1
	CORSAGE CUSHION OSTOSA LARRY CHRIS. COLUMBUS JESSAMINE WILLIAMS DIAMOND YEL. CHRIS. COLUMBUS GAY BLADE ASTORIA CHARLES NYE KINGS RANSOM ETHEL WATERS MINNEHAHA MESABI LIPSTICK REMEMBRANCE RED MISCHIEF DOLLI-ETTE RUBY MOUND RUSTIC MINNPINK PURPLE WATERS SPELLBOUND CECELIA ANN LADYGO MISCHIEF JOYBRINGER RASPBERRY ICE ALERT NO. 2 FUCHSIA FAIRY JEWELTONE	FEB. 18	FEB. 18 - MAR. 4	MAR. 4	APR. 8

S — For Single Stem Pots — Plant and Shade on Pinch Dates

Year-Round Pot Plant Schedule

Gloeckner

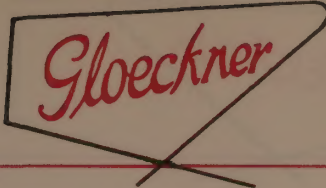
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BLOOM
Apr. 29
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S CRISTAL	JAN. 21	JAN. 21 - FEB. 11	FEB. 4	MAR. 11
S BONNAFFON DELUXE S CLIPPER	JAN. 28	JAN. 28 - FEB. 11	FEB. 11	MAR. 11
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S MERMAID	JAN. 28	JAN. 28 - FEB. 18	FEB. 11	MAR. 18
ACHIEVEMENT BLUE RIDGE	FEB. 4	FEB. 4 - FEB. 11	FEB. 18	MAR. 11
S CHALK CLIFF S SCEPTER S RED STAR S CRITERION S PERSONALITY S HUMDINGER	FEB. 4	FEB. 4 - FEB. 18	FEB. 18	MAR. 18
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	FEB. 4	FEB. 4 - FEB. 25	FEB. 18	MAR. 25
S IND. VARIETIES S ICE FOLLIES S STARBURST S COMMANDER S SNOW CRYSTAL S QUEEN'S LACE S GOLDEN CRYSTAL S GOLD LACE S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S PRINCESS ANNE S CARESS	FEB. 11	FEB. 11 - FEB. 18	FEB. 25	MAR. 18
MONTY QUICKSILVER SNOWCLAD DISCOVERY QUEEN OF PINKS	FEB. 11	FEB. 11 - FEB. 25	FEB. 25	MAR. 25
BRIDESMAID BLUEBELL	FEB. 18	FEB. 18 - FEB. 25	MAR. 4	MAR. 25
JOAN-ETTE GLORIA GARDENIA PEKING BLAZING GOLD CHEYENNE RADIANCE PINKNIFICENT	FEB. 18	FEB. 18 - MAR. 4	MAR. 4	APR. 1
CORSAGE CUSHION OSTOSA LARRY CHRIS. COLUMBUS JESSAMINE WILLIAMS DIAMOND YEL. CHRIS. COLUMBUS GAY BLADE ASTORIA CHARLES NYE KINGS RANSOM ETHEL WATERS MINNEHAHA MESABI LIPSTICK REMEMBRANCE RED MISCHIEF DOLLI-ETTE RUBY MOUND RUSTIC MINNPINK PURPLE WATERS SPELLBOUND CECELIA ANN LADYGO MISCHIEF JOYBRINGER RASPBERRY ICE ALERT NO. 2 FUCHSIA FAIRY JEWELTONE	FEB. 25	FEB. 25 - MAR. 11	MAR. 11	APR. 8

S — For Single Stem Pots — Plant and Shade on Pinch Dates

BLOOM May 6 1963	VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
	S CRISTAL	JAN. 28	JAN. 28 - FEB. 18	FEB. 11	MAR. 11
	BONNAFFON DELUXE	FEB. 4	FEB. 4 - FEB. 18	FEB. 18	MAR. 11
	S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	FEB. 4	FEB. 4 - FEB. 25	FEB. 18	MAR. 18
	ACHIEVEMENT BLUE RIDGE	FEB. 11	FEB. 11 - FEB. 18	FEB. 25	MAR. 11
	CHALK CLIFF JACKSTRAW SCEPTER S YELLOW STAR S RED STAR S CRITERION PERSONALITY HUMDINGER	FEB. 11	FEB. 11 - FEB. 25	FEB. 25	MAR. 18
	S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	FEB. 11	FEB. 11 - MAR. 4	FEB. 25	MAR. 25
	S IND. VARIETIES ICE FOLLIES SNOW CRYSTAL STARBURST S COMMANDER QUEEN'S LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLD LACE S GOLDEN GATE S BR. PRINCESS ANNE S FLAXEN PRINCESS ANNE S PRINCESS ANNE S PINK DELUXE CARESS	FEB. 18	FEB. 18 - FEB. 25	MAR. 4	MAR. 18
	MONTY QUICKSILVER SNOWCLAD DISCOVERY QUEEN OF PINKS	FEB. 18	FEB. 18 - MAR. 4	MAR. 4	MAR. 25
	MERCURY BRIDESMAID	FEB. 25	FEB. 25 - MAR. 4	MAR. 11	MAR. 25
	JOAN-ETTE GLORIA GARDENIA PEKING BLAZING GOLD CHEYENNE RADIANCE PINKNIFICENT	FEB. 25	FEB. 25 MAR. 11	MAR. 11	APR. 1
	CORSAGE CUSHION OSTOSA LARRY CHRIS. COLUMBUS JESSAMINE WILLIAMS DIAMOND YEL. CHRIS. COLUMBUS GAY BLADE ASTORIA CHARLES NYE KINGS RANSOM ETHEL WATERS MINNEHAHA MESABI LIPSTICK REMEMBRANCE RED MISCHIEF DOLLI-ETTE RUBY MOUND RUSTIC MINNPINK PURPLE WATERS SPELLBOUND CECELIA ANN LADYGO MISCHIEF JOYBRINGER RASPBERRY ICE ALERT NO. 2 FUCHSIA FAIRY JEWELTONE	MAR. 4	MAR. 4 - MAR. 18	MAR. 18	APR. 8

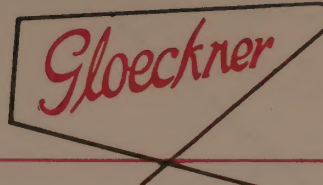


BLOOM
May 13
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
BONNAFFON DELUXE	FEB. 11	FEB. 11 - FEB. 25	FEB. 25	MAR. 11
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S MERMAID	FEB. 11	FEB. 11 - MAR. 4	FEB. 25	MAR. 18
ACHIEVEMENT BLUE RIDGE	FEB. 18	FEB. 18 - FEB. 25	MAR. 4	MAR. 11
S CHALK CLIFF S JACKSTRAW S SCEPTER S YELLOW STAR S RED STAR S CRITERION S PERSONALITY S HUMDINGER	FEB. 18	FEB. 18 - MAR. 4	MAR. 4	MAR. 18
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	FEB. 18	FEB. 18 - MAR. 11	MAR. 4	MAR. 25
S IND. VARIETIES S ICE FOLLIES S SNOW CRYSTAL S STARBURST S COMMANDER S QUEEN'S LACE S GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLD LACE S GOLDEN GATE S BR. PRINCESS ANNE S FLAXEN PRINCESS ANNE S PRINCESS ANNE S PINK DELUXE S CARESS	FEB. 25	FEB. 25 - MAR. 4	MAR. 11	MAR. 18
MONTY QUICKSILVER SNOWCLAD DISCOVERY QUEEN OF PINKS	FEB. 25	FEB. 25 - MAR. 11	MAR. 11	MAR. 25
MERCURY BRIDESMAID	MAR. 4	MAR. 4 - MAR. 11	MAR. 18	MAR. 25
JOAN-ETTE GLORIA GARDENIA PEKING BLAZING GOLD CHEYENNE RADIANCE PINKNIFICENT	MAR. 4	MAR. 4 - MAR. 18	MAR. 18	APR. 1
CORSAGE CUSHION OSTOSA LARRY CHRIS. COLUMBUS JESSAMINE WILLIAMS DIAMOND YEL. CHRIS. COLUMBUS GAY BLADE ASTORIA CHARLES NYE KINGS RANSOM ETHEL WATERS MINNEHAHA MESABI LIPSTICK REMEMBRANCE RED MISCHIEF DOLLI-ETTE RUBY MOUND RUSTIC MINNPINK PURPLE WATERS SPELLBOUND CECELIA ANN LADYGO MISCHIEF JOYBRINGER RASPBERRY ICE ALERT NO. 2 FUCHSIA FAIRY JEWELTONE	MAR. 11	MAR. 11 - MAR. 25	MAR. 25	APR. 8

Year-Round Pot Plant Schedule

BLOOM May 20 1963	VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
	S BONNAFFON DELUXE S CLIPPER	FEB. 18	FEB. 18 - MAR. 4	MAR. 4	MAR. 11
	S OREGON S YELLOW DELAWARE S WARHAWK S MERMAID	FEB. 18	FEB. 18 - MAR. 11	MAR. 4	MAR. 18
	ACHIEVEMENT BLUE RIDGE	FEB. 25	FEB. 25 - MAR. 4	MAR. 11	MAR. 11
	CHALK CLIFF SCEPTER S YELLOW STAR S RED STAR S CRITERION PERSONALITY HUMDINGER	FEB. 25	FEB. 25 - MAR. 11	MAR. 11	MAR. 18
	S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	FEB. 25	FEB. 25 - MAR. 18	MAR. 11	MAR. 25
	S IND. VARIETIES ICE FOLLIES STARBURST S COMMANDER SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S PRINCESS ANNE S CARESS	MAR. 4	MAR. 4 - MAR. 11	MAR. 18	MAR. 18
	MONTY QUICKSILVER SNOWCLAD DISCOVERY QUEEN OF PINKS	MAR. 4	MAR. 4 - MAR. 18	MAR. 18	MAR. 25
	MERCURY BRIDESMAID	MAR. 11	MAR. 11 - MAR. 18	MAR. 25	MAR. 25
	JOAN-ETTE GLORIA GARDENIA PEKING BLAZING GOLD CHEYENNE RADIANCE PINKNIFICENT	MAR. 11	MAR. 11 - MAR. 25	MAR. 25	APR. 1
	CORSAGE CUSHION OSTOSA LARRY CHRIS. COLUMBUS JESSAMINE WILLIAMS DIAMOND YEL. CHRIS. COLUMBUS GAY BLADE ASTORIA CHARLES NYE KINGS RANSOM ETHEL WATERS MINNEHAHA MESABI LIPSTICK REMEMBRANCE RED MISCHIEF DOLLI-ETTE RUBY MOUND RUSTIC MINNPINK PURPLE WATERS SPELLBOUND CECELIA ANN LADYGO MISCHIEF JOYBRINGER RASPBERRY ICE ALERT NO. 2 FUCHSIA FAIRY JEWELTONE	MAR. 18	MAR. 18 - APR. 1	APR. 1	APR. 8



BLOOM
May 27
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S BONNAFFON DELUXE S CLIPPER	FEB. 25	FEB. 25 - MAR. 11	MAR. 11	MAR. 11
S OREGON YELLOW DELAWARE WARHAWK MERMAID	FEB. 25	FEB. 25 - MAR. 18	MAR. 11	MAR. 18
ACHIEVEMENT BLUE RIDGE	MAR. 4	MAR. 4 - MAR. 11	MAR. 18	MAR. 11
CHALK CLIFF SCEPTER S YELLOW STAR S RED STAR S CRITERION PERSONALITY HUMDINGER	MAR. 4	MAR. 4 - MAR. 18	MAR. 18	MAR. 18
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	MAR. 4	MAR. 4 - MAR. 25	MAR. 18	MAR. 25
S IND. VARIETIES ICE FOLLIES STARBURST S COMMANDER SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S PRINCESS ANNE CARESS	MAR. 11	MAR. 11 - MAR. 18	MAR. 25	MAR. 18
MONTY QUICKSILVER SNOWCLAD DISCOVERY QUEEN OF PINKS	MAR. 11	MAR. 11 - MAR. 25	MAR. 25	MAR. 25
MERCURY BRIDESMAID	MAR. 18	MAR. 18 - MAR. 25	APR. 1	MAR. 25
JOAN-ETTE GLORIA GARDENIA PEKING BLAZING GOLD CHEYENNE RADIANCE PINKNIFICENT	MAR. 18	MAR. 18 - APR. 1	APR. 1	APR. 1
CORSAGE CUSHION OSTOSA LARRY CHRIS. COLUMBUS JESSAMINE WILLIAMS DIAMOND YEL. CHRIS. COLUMBUS GAY BLADE ASTORIA CHARLES NYE KINGS RANSOM ETHEL WATERS MINNEHAHA MESABI LIPSTICK REMEMBRANCE RED MISCHIEF DOLLI-ETTE RUBY MOUND RUSTIC MINNPINK PURPLE WATERS SPELLBOUND CECELIA ANN LADYGO MISCHIEF JOYBRINGER RASPBERRY ICE ALERT NO. 2 FUCHSIA FAIRY JEWELTONE	MAR. 25	MAR. 25 - APR. 8	APR. 8	APR. 8

Year-Round Pot Plant Schedule

BLOOM
June 3
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
BONNAFFON DELUXE	MAR. 11	MAR. 11 - MAR. 18	MAR. 18	MAR. 18
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S MERMAID	MAR. 11	MAR. 11 - MAR. 25	MAR. 18	MAR. 25
S CHALK CLIFF S YELLOW STAR S JACKSTRAW S SCEPTER S RED STAR S CRITERION S PERSONALITY S HUMDINGER	MAR. 18	MAR. 18 - MAR. 25	MAR. 25	MAR. 25
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	MAR. 18	MAR. 18 - APR. 1	MAR. 25	APR. 1
IND. VARIETIES SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLD LACE S GOLDEN GATE S BR. PRINCESS ANNE S FLAXEN PRINCESS ANNE S PRINCESS ANNE S CARESS	MAR. 25	NO	APR. 8	MAR. 25
MONTY QUICKSILVER SNOWCLAD DISCOVERY	MAR. 25	MAR. 25 - APR. 1	APR. 1	APR. 1
MERCURY BRIDESMAID	APR. 1	NO	APR. 8	APR. 1

BLOOM
June 10
1963

BONNAFFON DELUXE	MAR. 18	MAR. 18 - MAR. 25	MAR. 25	MAR. 25
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S MERMAID	MAR. 18	MAR. 18 - APR. 1	MAR. 25	APR. 1
S CHALK CLIFF S YELLOW STAR S JACKSTRAW S SCEPTER S RED STAR S CRITERION S PERSONALITY S HUMDINGER	MAR. 25	MAR. 25 - APR. 1	APR. 1	APR. 1
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	MAR. 25	MAR. 25 - APR. 8	APR. 8	APR. 8
IND. VARIETIES SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLD LACE S GOLDEN GATE S BR. PRINCESS ANNE S FLAXEN PRINCESS ANNE S PRINCESS ANNE S CARESS	APR. 1	NO	APR. 15	APR. 1
MONTY QUICKSILVER SNOWCLAD DISCOVERY	APR. 1	APR. 1 - APR. 8	APR. 15	APR. 8
MERCURY BRIDESMAID	APR. 8	NO	APR. 22	APR. 8

S — For Single Stem Pots — Plant and Shade on Pinch Dates

BLOOM
June 17
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
BONNAFFON DELUXE	MAR. 25	MAR. 25 - APR. 1	APR. 8	APR. 1
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	MAR. 25	MAR. 25 - APR. 8	APR. 8	APR. 8
S JACKSTRAW S YELLOW STAR S SCEPTER S RED STAR CRITERION PERSONALITY	APR. 1	APR. 8 - APR. 8	APR. 15	APR. 8
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	APR. 1	APR. 1 - APR. 15	APR. 15	APR. 15
SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE CARESS	APR. 8	NO	APR. 22	APR. 8
MONTY QUICKSILVER SNOWCLAD DISCOVERY	APR. 8	APR. 8 - APR. 15	APR. 22	APR. 15
MERCURY BRIDESMAID	APR. 15	NO	APR. 29	APR. 15

BLOOM
June 24
1963

BONNAFFON DELUXE	APR. 1	APR. 1 - APR. 8	APR. 15	APR. 8
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	APR. 1	APR. 1 - APR. 15	APR. 15	APR. 15
S JACKSTRAW S YELLOW STAR S SCEPTER S RED STAR CRITERION PERSONALITY	APR. 8	APR. 8 - APR. 15	APR. 22	APR. 22
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	APR. 8	APR. 8 - APR. 22	APR. 22	APR. 22
SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE CARESS	APR. 15	NO	APR. 29	APR. 15
MONTY QUICKSILVER SNOWCLAD DISCOVERY	APR. 15	APR. 15 - APR. 22	APR. 29	APR. 22
MERCURY BRIDESMAID	APR. 22	NO	MAY 6	APR. 22

Year-Round Pot Plant Schedule

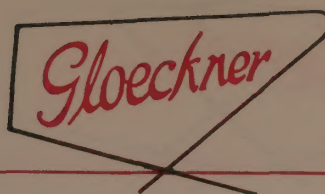
BLOOM
July 1
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
BONNAFFON DELUXE	APR. 8	APR. 8 - APR. 15	APR. 22	APR. 15
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S MERMAID	APR. 8	APR. 8 - APR. 22	APR. 22	APR. 22
S JACKSTRAW S YELLOW STAR S SCEPTER S RED STAR S CRITERION	APR. 15	APR. 15 - APR. 22	APR. 29	APR. 22
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	APR. 15	APR. 15 - APR. 29	APR. 29	APR. 29
SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE	APR. 22	NO	MAY 6	APR. 22
QUICKSILVER SNOWCLAD DISCOVERY	APR. 22	APR. 22 - APR. 29	MAY 6	APR. 29
MERCURY BRIDESMAID	APR. 29	NO	MAY 13	APR. 29

BLOOM
July 8
1963

BONNAFFON DELUXE	APR. 15	APR. 15 - APR. 22	APR. 29	APR. 22
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S MERMAID	APR. 15	APR. 15 - APR. 29	APR. 29	APR. 29
S JACKSTRAW S YELLOW STAR S SCEPTER S RED STAR S CRITERION	APR. 22	APR. 22 - APR. 29	MAY 6	APR. 29
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	APR. 22	APR. 22 - MAY 6	MAY 6	MAY 6
SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE	APR. 29	NO	MAY 13	APR. 29
QUICKSILVER SNOWCLAD DISCOVERY	APR. 29	APR. 29 - MAY 6	MAY 13	MAY 6
MERCURY BRIDESMAID	MAY 6	NO	MAY 20	MAY 6

S — For Single Stem Pots — Plant and Shade on Pinch Dates



BLOOM
July 15
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
BONNAFFON DELUXE	APR. 22	APR. 22 - APR. 29	MAY 6	APR. 29
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S MERMAID	APR. 22	APR. 22 - MAY 6	MAY 6	MAY 6
S JACKSTRAW S YELLOW STAR S SCEPTER S RED STAR S CRITERION	APR. 29	APR. 29 - MAY 6	MAY 13	MAY 6
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	APR. 29	APR. 29 - MAY 13	MAY 13	MAY 13
SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE	MAY 6	NO	MAY 20	MAY 6
QUICKSILVER SNOWCLAD DISCOVERY	MAY 6	MAY 6 - MAY 13	MAY 20	MAY 13
MERCURY BRIDESMAID	MAY 13	NO	MAY 27	MAY 13

BLOOM
July 22
1963

BONNAFFON DELUXE	APR. 29	APR. 29 - MAY 6	MAY 13	MAY 6
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S MERMAID	APR. 29	APR. 29 - MAY 13	MAY 13	MAY 13
S JACKSTRAW S YELLOW STAR S SCEPTER S RED STAR S CRITERION	MAY 6	MAY 6 - MAY 13	MAY 20	MAY 13
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	MAY 6	MAY 6 - MAY 20	MAY 20	MAY 20
SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE	MAY 13	NO	MAY 27	MAY 13
QUICKSILVER SNOWCLAD DISCOVERY	MAY 13	MAY 13 - MAY 20	MAY 27	MAY 20
MERCURY BRIDESMAID	MAY 20	NO	JUNE 3	MAY 20

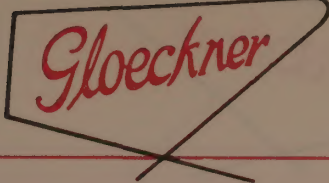
S — For Single Stem Pots — Plant and Shade on Pinch Dates

BLOOM
July 29
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	PINCH	SHADE
BONNAFFON DELUXE	MAY 6	MAY 20	MAY 13
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S MERMAID	MAY 6	MAY 20	MAY 20
S JACKSTRAW S YELLOW STAR S SCEPTER S RED STAR S CRITERION	MAY 13	MAY 27	MAY 20
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	MAY 13	MAY 27	MAY 27
SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE	MAY 20	JUNE 3	MAY 20
QUICKSILVER SNOWCLAD DISCOVERY	MAY 20	JUNE 3	MAY 27
MERCURY BRIDESMAID	MAY 27	JUNE 10	MAY 27

BLOOM
Aug. 5
1963

BONNAFFON DELUXE	MAY 13	MAY 27	MAY 20
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S MERMAID	MAY 13	MAY 27	MAY 27
S JACKSTRAW S YELLOW STAR S SCEPTER S RED STAR S CRITERION	MAY 20	JUNE 3	MAY 27
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	MAY 20	JUNE 3	JUNE 3
SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE	MAY 27	JUNE 10	MAY 27
QUICKSILVER SNOWCLAD DISCOVERY	MAY 27	JUNE 10	JUNE 3
MERCURY BRIDESMAID	JUNE 3	JUNE 17	JUNE 3



BLOOM
Aug. 12
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	PINCH	SHADE
BONNAFFON DELUXE	MAY 20	JUNE 3	MAY 27
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S MERMAID	MAY 20	JUNE 3	JUNE 3
S JACKSTRAW S YELLOW STAR S SCEPTER S RED STAR S CRITERION	MAY 27	JUNE 10	JUNE 3
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	MAY 27	JUNE 10	JUNE 10
SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE	JUNE 3	JUNE 17	JUNE 3
QUICKSILVER SNOWCLAD DISCOVERY	JUNE 3	JUNE 17	JUNE 10
MERCURY BRIDESMAID	JUNE 10	JUNE 24	JUNE 10

BLOOM
Aug. 19
1963

BONNAFFON DELUXE	MAY 27	JUNE 10	JUNE 3
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S MERMAID	MAY 27	JUNE 10	JUNE 10
S JACKSTRAW S YELLOW STAR S SCEPTER S RED STAR S CRITERION	JUNE 3	JUNE 17	JUNE 10
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	JUNE 3	JUNE 17	JUNE 17
SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE	JUNE 10	JUNE 24	JUNE 10
QUICKSILVER SNOWCLAD DISCOVERY	JUNE 10	JUNE 24	JUNE 17
MERCURY BRIDESMAID	JUNE 17	JULY 1	JUNE 17

BLOOM
Aug. 26
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	PINCH	SHADE
BONNAFFON DELUXE	JUNE 3	JUNE 17	JUNE 10
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	JUNE 3	JUNE 17	JUNE 17
S JACKSTRAW S YELLOW STAR S SCEPTER S RED STAR S CRITERION	JUNE 10	JUNE 24	JUNE 17
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	JUNE 10	JUNE 24	JUNE 24
SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE	JUNE 17	JULY 1	JUNE 17
QUICKSILVER SNOWCLAD DISCOVERY	JUNE 17	JULY 1	JUNE 24
MERCURY BRIDESMAID	JUNE 24	JULY 8	JUNE 24

BLOOM
Sept. 2
1963

BONNAFFON DELUXE	JUNE 10	JUNE 24	JUNE 17
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	JUNE 10	JUNE 24	JUNE 24
S JACKSTRAW S YELLOW STAR S SCEPTER S RED STAR S CRITERION	JUNE 17	JULY 1	JUNE 24
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	JUNE 17	JULY 1	JULY 1
SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE	JUNE 24	JULY 8	JUNE 24
QUICKSILVER SNOWCLAD DISCOVERY BRAVO	JUNE 24	JULY 8	JULY 1
MERCURY BRIDESMAID	JULY 1	JULY 15	JULY 1

S — For Single Stem Pots — Plant and Shade on Pinch Dates

Year-Round Pot Plant Schedule

Gloeckner

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BLOOM
Sept. 9
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	PINCH	SHADE
BONNAFFON DELUXE	JUNE 17	JULY 1	JUNE 24
S OREGON YELLOW DELAWARE DELAWARE WARHAWK FUJII DELAWARE MERMAID	JUNE 17	JULY 1	JULY 1
S YELLOW STAR JACKSTRAW SCEPTER S RED STAR CRITERION PERSONALITY HUMDINGER	JUNE 24	JULY 8	JULY 1
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	JUNE 24	JULY 8	JULY 8
STARBURST SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE	JULY 1	JULY 15	JULY 1
QUICKSILVER SNOWCLAD DISCOVERY BRAVO	JULY 1	JULY 15	JULY 8
MERCURY BRIDESMAID	JULY 8	JULY 22	JULY 8

BLOOM
Sept. 16
1963

BONNAFFON DELUXE	JUNE 24	JULY 8	JULY 1
S OREGON YELLOW DELAWARE DELAWARE WARHAWK FUJII DELAWARE MERMAID	JUNE 24	JULY 8	JULY 8
S YELLOW STAR JACKSTRAW SCEPTER S RED STAR CRITERION PERSONALITY HUMDINGER	JULY 1	JULY 15	JULY 8
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	JULY 1	JULY 15	JULY 15
STARBURST SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S FLAXEN PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S PRINCESS ANNE	JULY 8	JULY 22	JULY 8
QUICKSILVER SNOWCLAD DISCOVERY BRAVO	JULY 8	JULY 22	JULY 15
MERCURY BRIDESMAID	JULY 15	JULY 29	JULY 15

S — For Single Stem Pots — Plant and Shade on Pinch Dates

Year-Round Pot Plant Schedule

BLOOM
Sept. 23
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	PINCH	SHADE
BONNAFFON DELUXE	JULY 1	JULY 15	JULY 8
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S FUJII DELAWARE S MERMAID	JULY 1	JULY 15	JULY 15
S YELLOW STAR S JACKSTRAW S SCEPTER S RED STAR S CRITERION S PERSONALITY S HUMDINGER	JULY 8	JULY 22	JULY 15
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	JULY 8	JULY 22	JULY 22
STARBURST SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S FLAXEN PRINCESS ANNE S BRONZE PRINCESS ANNE S PRINCESS ANNE	JULY 15	JULY 29	JULY 15
QUICKSILVER SNOWCLAD DISCOVERY BRAVO	JULY 15	JULY 29	JULY 22
MERCURY BRIDESMAID	JULY 22	AUG. 5	JULY 22

BLOOM
Sept. 30
1963

BONNAFFON DELUXE	JULY 8	JULY 22	JULY 15
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S FUJII DELAWARE S MERMAID	JULY 8	JULY 22	JULY 22
S YELLOW STAR S JACKSTRAW S SCEPTER S RED STAR S CRITERION S PERSONALITY S HUMDINGER	JULY 15	JULY 29	JULY 22
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	JULY 15	JULY 29	JULY 29
S COMMANDER S STARBURST S SNOW CRYSTAL S QUEEN'S LACE S GOLDEN CRYSTAL S GOLD LACE S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S FLAXEN PRINCESS ANNE S BRONZE PRINCESS ANNE S PRINCESS ANNE	JULY 22	AUG. 5	JULY 22
QUICKSILVER SNOWCLAD DISCOVERY BRAVO	JULY 22	AUG. 5	JULY 29
MERCURY BLUEBELL BRIDESMAID	JULY 29	AUG. 12	JULY 29

S — For Single Stem Pots — Plant and Shade on Pinch Dates

Year-Round Pot Plant Schedule

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BLOOM
Oct. 7
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S BONNAFFON DELUXE S CLIPPER CHARM	JULY 15	NO	JULY 29	JULY 22
S OREGON YELLOW DELAWARE DELAWARE WARHAWK FUJII DELAWARE MERMAID	JULY 15	NO	JULY 29	JULY 29
VEDOVA VENOYA BLUE RIDGE	JULY 22	NO	AUG. 5	JULY 22
S CHALK CLIFF S YELLOW STAR SCEPTER S RED STAR CRITERION PERSONALITY HUMDINGER	JULY 22	NO	AUG. 5	JULY 29
S WILSON'S WHITE S POITEVINE SUPREME S MALOU S DARK WILSON'S YELLOW	JULY 22	JULY 29 - AUG. 5	AUG. 5	AUG. 5
S COMMANDER ICE FOLLIES STARBURST QUEEN'S LACE SNOW CRYSTAL S IND. VARIETIES GOLD LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S FLAXEN PRINCESS ANNE S BRONZE PRINCESS ANNE S APRICOT PRINCESS ANNE S PRINCESS ANNE S PINK DELUXE CARESS	JULY 29	NO	AUG. 12	JULY 29
MONTY QUICKSILVER SNOWCLAD DISCOVERY BRAVO	JULY 29	JULY 29 - AUG. 5	AUG. 12	AUG. 5
MERCURY BLUEBELL BRIDESMAID BRONZE BRIDESMAID	AUG. 5	NO	AUG. 19	AUG. 5

S — For Single Stem Pots — Plant and Shade on Pinch Dates

Year-Round Pot Plant Schedule

BLOOM Oct. 14 1963	VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
	BONNAFFON DELUXE S CLIPPER CHARM	JULY 22	NO	AUG. 5	JULY 29
	S OREGON YELLOW DELAWARE DELAWARE WARHAWK FUJII DELAWARE MERMAID	JULY 22	JULY 29 - AUG. 5	AUG. 5	AUG. 5
	VEDOVA VENOYA BLUE RIDGE	JULY 29	NO	AUG. 12	JULY 29
	CHALK CLIFF S YELLOW STAR SCEPTER S RED STAR CRITERION PERSONALITY HUMDINGER	JULY 29	JULY 29 - AUG. 5	AUG. 12	AUG. 5
	S WILSON'S WHITE S POITEVINE SUPREME S MALOU S DARK WILSON'S YELLOW	JULY 22	JULY 22 - AUG. 12	AUG. 5	AUG. 12
	S COMMANDER ICE FOLLIES STARBURST QUEEN'S LACE SNOW CRYSTAL S IND. VARIETIES GOLD LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S FLAXEN PRINCESS ANNE S BRONZE PRINCESS ANNE S APRICOT PRINCESS ANNE S PRINCESS ANNE S PINK DELUXE CARESS	AUG. 5	NO	AUG. 19	AUG. 5
	MONTY QUICKSILVER SNOWCLAD DISCOVERY BRAVO	JULY 29	JULY 29 - AUG. 12	AUG. 12	AUG. 12
	MERCURY BLUEBELL BRIDESMAID BRONZE BRIDESMAID	AUG. 5	AUG. 5 - AUG. 12	AUG. 19	AUG. 12

S — For Single Stem Pots — Plant and Shade on Pinch Dates

BLOOM
Oct. 21
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S BONNAFFON DELUXE CLIPPER CHARM	JULY 29	NO	AUG. 12	AUG. 5
S OREGON YELLOW DELAWARE DELAWARE WARHAWK FUJII DELAWARE MERMAID	JULY 22	JULY 22 - AUG. 12	AUG. 5	AUG. 12
VEDOVA VENOYA BLUE RIDGE	AUG. 5	NO	AUG. 19	AUG. 5
S CHALK CLIFF S YELLOW STAR SCEPTER S RED STAR CRITERION PERSONALITY HUMDINGER	JULY 29	JULY 29 - AUG. 12	AUG. 12	AUG. 12
S WILSON'S WHITE S POITEVINE SUPREME S MALOU S DARK WILSON'S YELLOW	JULY 29	JULY 29 - AUG. 19	AUG. 12	AUG. 19
S COMMANDER ICE FOLLIES STARBURST QUEEN'S LACE SNOW CRYSTAL S IND VARIETIES GOLD LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S FLAXEN PRINCESS ANNE S BRONZE PRINCESS ANNE S APRICOT PRINCESS ANNE S PRINCESS ANNE S PINK DELUXE CARESS	AUG. 5	AUG. 5 - AUG. 12	AUG. 19	AUG. 12
MONTY QUICKSILVER SNOWCLAD DISCOVERY BRAVO	AUG. 5	AUG. 5 - AUG. 19	AUG. 19	AUG. 19
MERCURY BLUEBELL BRIDESMAID BRONZE BRIDESMAID	AUG. 12	AUG. 12 - AUG. 19	AUG. 26	AUG. 19

Year-Round Pot Plant Schedule

BLOOM Oct. 28 1963	VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
	S BONNAFFON DELUXE S CLIPPER CHARM	JULY 29	JULY 29 - AUG. 12	AUG. 12	AUG. 12
	S OREGON YELLOW DELAWARE DELAWARE WARHAWK FUJII DELAWARE MERMAID	JULY 29	JULY 29 - AUG. 19	AUG. 12	AUG. 19
	VEDOVA VENOYA BLUE RIDGE	AUG. 5	AUG. 5 - AUG. 12	AUG. 19	AUG. 12
	S CHALK CLIFF S YELLOW STAR SCEPTER S RED STAR CRITERION PERSONALITY HUMDINGER	AUG. 5	AUG. 5 - AUG. 19	AUG. 19	AUG. 19
	S WILSON'S WHITE S POITEVINE SUPREME S MALOU S DARK WILSON'S YELLOW	AUG. 5	AUG. 5 - AUG. 26	AUG. 19	AUG. 26
	S COMMANDER ICE FOLLIES STARBURST QUEEN'S LACE SNOW CRYSTAL S IND. VARIETIES GOLD LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S FLAXEN PRINCESS ANNE S BRONZE PRINCESS ANNE SPITFIRE S APRICOT PRINCESS ANNE S PRINCESS ANNE S PINK DELUXE CARESS	AUG. 12	AUG. 12 - AUG. 19	AUG. 26	AUG. 19
	MONTY QUICKSILVER SNOWCLAD DISCOVERY BRAVO	AUG. 12	AUG. -12 - AUG. 26	AUG. 26	AUG. 26
	MERCURY BLUEBELL BRIDESMAID BRONZE BRIDESMAID	AUG. 19	AUG. 19 - AUG. 26	SEPT. 2	AUG. 26

S — For Single Stem Pots — Plant and Shade on Pinch Dates

BLOOM
Nov. 4
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
BONNAFFON DELUXE S CLIPPER CHARM	AUG. 5	AUG. 5 - AUG. 19	AUG. 19	AUG. 19
S OREGON YELLOW DELAWARE DELAWARE WARHAWK FUJII DELAWARE MERMAID	AUG. 5	AUG. 5 - AUG. 26	AUG. 19	AUG. 26
ACHIEVEMENT S VALENTINE VEDOVA VENOYA BLUE RIDGE	AUG. 12	AUG. 12 - AUG. 19	AUG. 26	AUG. 19
CHALK CLIFF SCEPTER S RED STAR CRITERION PERSONALITY HUMDINGER	AUG. 12	AUG. 12 - AUG. 26	AUG. 26	AUG. 26
S COMMANDER ICE FOLLIES STARBURST QUEEN'S LACE SNOW CRYSTAL S IND. VARIETIES GOLD LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S FLAXEN PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE SPITFIRE S APRICOT PRINCESS ANNE S PRINCESS ANNE S PINK DELUXE CARESS	AUG. 19	AUG. 19 - AUG. 26	SEPT. 2	AUG. 26
DISCOVERY QUEEN OF PINKS BRAVO	AUG. 19	AUG. 19 - SEPT. 2	SEPT. 2	NO
BLUEBELL BRIDESMAID BRONZE BRIDESMAID	AUG. 26	AUG.- 26 - SEPT. 2	SEPT. 9	NO

Year-Round Pot Plant Schedule

BLOOM
Nov. 11
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S BONNAFFON DELUXE S CLIPPER CHARM	AUG. 12	AUG. 12 - AUG. 26	AUG. 26	AUG. 26
S OREGON YELLOW DELAWARE DELAWARE WARHAWK FUJII DELAWARE MERMAID	AUG. 12	AUG. 12 - SEPT. 2	AUG. 26	SEPT. 2
S ACHIEVEMENT S VALENTINE VEDOVA VENOYA BLUE RIDGE	AUG. 19	AUG. 19 - AUG. 26	SEPT. 2	AUG. 26
S CHALK CLIFF SCEPTER S RED STAR CRITERION PERSONALITY HUMDINGER	AUG. 19	AUG. 19 - SEPT. 2	SEPT. 2	SEPT. 2
S COMMANDER ICE FOLLIES STARBURST QUEEN'S LACE SNOW CRYSTAL S IND. VARIETIES GOLD LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S FLAXEN PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S APRICOT PRINCESS ANNE SPITFIRE S PRINCESS ANNE S PINK DELUXE CARESS	AUG. 26	AUG. 26 - SEPT. 2	SEPT. 9	SEPT. 2
DISCOVERY QUEEN OF PINKS BRAVO	AUG. 26	AUG. 26 - SEPT. 9	SEPT. 9	NO
BLUEBELL BRIDESMAID BRONZE BRIDESMAID	SEPT. 2	SEPT. 2 - SEPT. 9	SEPT. 16	NO

S — For Single Stem Pots — Plant and Shade on Pinch Dates

BLOOM
Nov. 18
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
BONNAFFON DELUXE S CLIPPER CHARM	AUG. 19	AUG. 19 - SEPT. 2	SEPT. 2	SEPT. 2
S OREGON YELLOW DELAWARE DELAWARE WARHAWK FUJII DELAWARE MERMAID	AUG. 19	AUG. 19 - SEPT. 9	SEPT. 2	NO
ACHIEVEMENT S VALENTINE VEDOVA VENOYA BLUE RIDGE	AUG. 26	AUG. 26 - SEPT. 2	SEPT. 9	SEPT. 2
CHALK CLIFF SCEPTER S RED STAR CRITERION PERSONALITY HUMDINGER	AUG. 26	AUG. 26 - SEPT. 9	SEPT. 9	NO
S COMMANDER ICE FOLLIES STARBURST QUEEN'S LACE SNOW CRYSTAL S IND. VARIETIES GOLD LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S FLAXEN PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S APRICOT PRINCESS ANNE SPITFIRE S PRINCESS ANNE S PINK DELUXE CARESS	SEPT. 2	SEPT. 2 - SEPT. 9	SEPT. 16	NO
DISCOVERY QUEEN OF PINKS BRAVO	SEPT. 2	SEPT. 2 - SEPT. 16	SEPT. 16	NO
BLUEBELL BRIDESMAID BRONZE BRIDESMAID	SEPT. 9	SEPT. 15 - SEPT. 19	SEPT. 23	NO

BLOOM
Nov. 25
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
BONNAFFON DELUXE S CLIPPER CHARM	AUG. 26	AUG.- 26 - SEPT. 9	SEPT. 9	SEPT. 9
S OREGON YELLOW DELAWARE DELAWARE WARHAWK FUJII DELAWARE MERMAID	AUG. 26	AUG. 26 - SEPT. 16	SEPT. 9	NO
ACHIEVEMENT S VALENTINE VEDOVA VENOYA BLUE RIDGE	SEPT. 2	SEPT. 2 - SEPT. 9	SEPT. 16	SEPT. 9
CHALK CLIFF S SCEPTER RED STAR CRITERION PERSONALITY HUMDINGER	SEPT. 2	SEPT. 2 - SEPT. 16	SEPT. 16	NO
S COMMANDER ICE FOLLIES STARBURST QUEEN'S LACE SNOW CRYSTAL S IND. VARIETIES GOLD LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S FLAXEN PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S APRICOT PRINCESS ANNE SPITFIRE S PRINCESS ANNE S PINK DELUXE CARESS	SEPT. 9	SEPT. 9 - SEPT. 16	SEPT. 23	NO
DISCOVERY QUEEN OF PINKS BRAVO	SEPT. 9	SEPT. 9 - SEPT. 23	SEPT. 23	NO
BLUEBELL BRIDESMAID BRONZE BRIDESMAID	SEPT. 16	SEPT. 16 - SEPT. 23	SEPT. 30	NO

S — For Single Stem Pots — Plant and Shade on Pinch Dates

BLOOM
Dec. 2
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S BONNAFFON DELUXE CLIPPER CHARM	SEPT. 2	SEPT. 2 - SEPT. 16	SEPT. 16	NO
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	SEPT. 2	SEPT. 2 - SEPT. 23	SEPT. 16	NO
ACHIEVEMENT BLUE RIDGE	SEPT. 9	SEPT. 9 - SEPT. 16	SEPT. 23	NO
S RED STAR CRITERION PERSONALITY HUMDINGER	SEPT. 9	SEPT. 9 - SEPT. 23	SEPT. 23	NO
S COMMANDER ICE FOLLIES STARBURST SNOW CRYSTAL LITTLE AMERICA QUEEN'S LACE GOLDEN CRYSTAL GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S SPITFIRE S PRINCESS ANNE S PINK DELUXE	SEPT. 16	SEPT. 16 - SEPT. 23	SEPT. 30	NO
DISCOVERY BLUEBELL QUEEN OF PINKS BRIDESMAID BRAVO	SEPT. 16	SEPT. 16 - SEPT. 30	SEPT. 30	NO

BLOOM
Dec. 9
1963

S BONNAFFON DELUXE CLIPPER CHARM	SEPT. 9	SEPT. 9 - SEPT. 23	SEPT. 23	NO
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	SEPT. 9	SEPT. 9 - SEPT. 30	SEPT. 23	NO
ACHIEVEMENT BLUE RIDGE	SEPT. 16	SEPT. 16 - SEPT. 23	SEPT. 30	NO
S RED STAR CRITERION PERSONALITY HUMDINGER	SEPT. 16	SEPT. 16 - SEPT. 30	SEPT. 30	NO
S COMMANDER ICE FOLLIES STARBURST SNOW CRYSTAL LITTLE AMERICA QUEEN'S LACE GOLDEN CRYSTAL GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S SPITFIRE S PRINCESS ANNE S PINK DELUXE	SEPT. 23	SEPT. 23 - SEPT. 30	OCT. 7	NO
DISCOVERY BLUEBELL QUEEN OF PINKS BRIDESMAID BRAVO	SEPT. 23	SEPT. 23 - OCT. 7	OCT. 7	NO

BLOOM
Dec. 16
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S BONNAFFON DELUXE CLIPPER CHARM	SEPT. 16	SEPT. 16 - SEPT. 30	SEPT. 30	NO
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	SEPT. 16	SEPT. 16 - OCT. 7	SEPT. 30	NO
ACHIEVEMENT BLUE RIDGE	SEPT. 23	SEPT. 23 - SEPT. 30	OCT. 7	NO
S RED STAR CRITERION PERSONALITY HUMDINGER	SEPT. 23	SEPT. 23 - OCT. 7	OCT. 7	NO
S COMMANDER ICE FOLLIES STARBURST SNOW CRYSTAL LITTLE AMERICA QUEEN'S LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S SPITFIRE S PRINCESS ANNE S PINK DELUXE	SEPT. 30	SEPT. 30 - OCT. 7	OCT. 14	NO
DISCOVERY BLUEBELL QUEEN OF PINKS BRIDESMAID BRAVO	SEPT. 30	SEPT. 30 - OCT. 14	OCT. 14	NO

BLOOM
Dec. 23
1963

S BONNAFFON DELUXE CLIPPER CHARM	SEPT. 23	SEPT. 23 - OCT. 7	OCT. 7	NO
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	SEPT. 23	SEPT. 23 - OCT. 14	OCT. 7	NO
ACHIEVEMENT BLUE RIDGE	SEPT. 30	SEPT. 30 - OCT. 7	OCT. 14	NO
S RED STAR CRITERION PERSONALITY HUMDINGER	SEPT. 30	SEPT. 30 - OCT. 14	OCT. 14	NO
S COMMANDER ICE FOLLIES STARBURST SNOW CRYSTAL LITTLE AMERICA QUEEN'S LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S SPITFIRE S PRINCESS ANNE	OCT. 7	OCT. 7 - OCT. 14	OCT. 21	NO
DISCOVERY BLUEBELL QUEEN OF PINKS BRIDESMAID BRAVO	OCT. 7	OCT. 7 - OCT. 21	OCT. 21	NO

S — For Single Stem Pots — Plant and Shade on Pinch Dates

BLOOM
Dec. 30
1963

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S BONNAFFON DELUXE CLIPPER CHARM	SEPT. 30	SEPT. 30 - OCT. 14	OCT. 14	NO
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	SEPT. 30	SEPT. 30 - OCT. 21	OCT. 14	NO
ACHIEVEMENT BLUE RIDGE	OCT. 7	OCT. 7 - OCT. 14	OCT. 21	NO
S RED STAR CRITERION PERSONALITY	OCT. 7	OCT. 7 - OCT. 21	OCT. 21	NO
S COMMANDER ICE FOLLIES STARBURST SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S SPITFIRE S PRINCESS ANNE	OCT. 14	OCT. 14 - OCT. 21	OCT. 28	NO
DISCOVERY BLUEBELL QUEEN OF PINKS BRIDESMAID BRAVO	OCT. 14	OCT. 14 - OCT. 28	OCT. 28	NO

BLOOM
Jan. 6
1964

S BONNAFFON DELUXE CLIPPER CHARM	OCT. 7	OCT. 7 - OCT. 21	OCT. 21	NO
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	OCT. 7	OCT. 7 - OCT. 28	OCT. 21	NO
ACHIEVEMENT BLUE RIDGE	OCT. 14	OCT. 14 - OCT. 21	OCT. 28	NO
S RED STAR CRITERION PERSONALITY	OCT. 14	OCT. 14 - OCT. 28	OCT. 28	NO
S COMMANDER ICE FOLLIES STARBURST SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S SPITFIRE S PRINCESS ANNE	OCT. 21	OCT. 21 - OCT. 28	NOV. 4	NO
DISCOVERY BLUEBELL QUEEN OF PINKS BRIDESMAID BRAVO	OCT. 21	OCT. 21 - NOV. 4	NOV. 4	NO

BLOOM
Jan. 13
1964

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S BONNAFFON DELUXE CLIPPER CHARM	OCT. 14	OCT. 14 - OCT. 28	OCT. 28	NO
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	OCT. 14	OCT. 14 - NOV. 4	OCT. 28	NO
ACHIEVEMENT BLUE RIDGE	OCT. 21	OCT. 21 - OCT. 28	NOV. 4	NO
S RED STAR CRITERION PERSONALITY	OCT. 21	OCT. 21 - NOV. 4	NOV. 4	NO
COMMANDER ICE FOLLIES STARBURST SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S SPITFIRE S PRINCESS ANNE	OCT. 28	OCT. 28 - NOV. 4	NOV. 11	NO
DISCOVERY BLUEBELL QUEEN OF PINKS BRIDESMAID BRONZE BRIDESMAID BRAVO	OCT. 28	OCT. 28 - NOV. 11	NOV. 11	NO

BLOOM
Jan. 20
1964

S BONNAFFON DELUXE CLIPPER CHARM	OCT. 11	OCT. 11 - NOV. 4	NOV. 4	NO
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	OCT. 21	OCT. 21 - NOV. 11	NOV. 4	NO
ACHIEVEMENT BLUE RIDGE	OCT. 28	OCT. 28 - NOV. 4	NOV. 11	NO
S RED STAR CRITERION PERSONALITY	OCT. 28	OCT. 28 - NOV. 11	NOV. 11	NO
COMMANDER ICE FOLLIES STARBURST SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S SPITFIRE S PRINCESS ANNE	NOV. 4	NOV. 4 - NOV. 11	NOV. 18	NO
DISCOVERY BLUEBELL QUEEN OF PINKS BRIDESMAID BRONZE BRIDESMAID BRAVO	NOV. 4	NOV. 4 - NOV. 18	NOV. 18	NO

BLOOM
Jan. 27
1964

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S BONNAFFON DELUXE CLIPPER CHARM	OCT. 28	OCT. 28 - NOV. 11	NOV. 11	NO
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	OCT. 28	OCT. 28 - NOV. 18	NOV. 11	NO
ACHIEVEMENT BLUE RIDGE	NOV. 4	NOV. 4 - NOV. 11	NOV. 18	NO
S RED STAR CRITERION PERSONALITY	NOV. 4	NOV. 4 - NOV. 18	NOV. 18	NO
S COMMANDER ICE FOLLIES STARBURST SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S SPITFIRE S PRINCESS ANNE	NOV. 11	NOV. 11 - NOV. 18	NOV. 25	NO
DISCOVERY BLUEBELL QUEEN OF PINKS BRIDESMAID BRAVO BRONZE BRIDESMAID	NOV. 11	NOV. 11 - NOV. 25	NOV. 25	NO

BLOOM
Feb. 3
1964

S BONNAFFON DELUXE CLIPPER CHARM	OCT. 28	OCT. 28 - NOV. 18	NOV. 18	NO
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	OCT. 28	OCT. 28 - NOV. 25	NOV. 18	NO
ACHIEVEMENT BLUE RIDGE	NOV. 4	NOV. 4 - NOV. 18	NOV. 25	NO
S CHALK CLIFF RED STAR CRITERION PERSONALITY	NOV. 4	NOV. 4 - NOV. 25	NOV. 25	NO
S COMMANDER ICE FOLLIES STARBURST SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S SPITFIRE S PRINCESS ANNE	NOV. 11	NOV. 11 - NOV. 25	DEC. 2	NO
DISCOVERY BLUEBELL QUEEN OF PINKS BRIDESMAID BRAVO BRONZE BRIDESMAID	NOV. 11	NOV. 11 - DEC. 2	DEC. 2	NO

BLOOM
Feb. 10
1964

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S BONNAFFON DELUXE CLIPPER CHARM	NOV. 4	NOV. 4 - NOV. 25	NOV. 25	NO
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	NOV. 4	NOV. 4 - DEC. 2	NOV. 25	NO
ACHIEVEMENT BLUE RIDGE	NOV. 11	NOV. 11 - NOV. 25	DEC. 2	NO
S RED STAR CRITERION PERSONALITY	NOV. 11	NOV. 11 - DEC. 2	DEC. 2	NO
S COMMANDER ICE FOLLIES STARBURST SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S SPITFIRE S PRINCESS ANNE	NOV. 18	NOV. 18 - DEC. 2	DEC. 9	NO
DISCOVERY BLUEBELL QUEEN OF PINKS BRIDESMAID BRAVO BRONZE BRIDESMAID	NOV. 18	NOV. 18 - DEC. 9	DEC. 9	NO

BLOOM
Feb. 17
1964

S BONNAFFON DELUXE CLIPPER CHARM	NOV. 11	NOV. 11 - DEC. 2	DEC. 2	NO
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	NOV. 11	NOV. 11 - DEC. 9	DEC. 2	NO
ACHIEVEMENT BLUE RIDGE	NOV. 18	NOV. 18 - DEC. 2	DEC. 9	NO
S CHALK CLIFF RED STAR CRITERION PERSONALITY CARESS	NOV. 18	NOV. 18 - DEC. 9	DEC. 9	NO
S COMMANDER ICE FOLLIES STARBURST SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S SPITFIRE S PRINCESS ANNE	NOV. 25	NOV. 25 - DEC. 9	DEC. 16	NO
DISCOVERY BLUEBELL QUEEN OF PINKS BRIDESMAID BRAVO BRONZE BRIDESMAID	NOV. 25	NOV. 25 - DEC. 16	DEC. 16	NO

S — For Single Stem Pots — Plant and Shade on Pinch Dates

BLOOM
Feb. 24
1964

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S BONNAFFON DELUXE CLIPPER CHARM	NOV. 18	NOV. 18 - DEC. 9	DEC. 9	NO
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	NOV. 18	NOV. 18 - DEC. 16	DEC. 9	NO
ACHIEVEMENT BLUE RIDGE	NOV. 25	NOV. 25 - DEC. 9	DEC. 16	NO
S RED STAR CRITERION PERSONALITY HUMDINGER	NOV. 25	NOV. 25 - DEC. 16	DEC. 16	NO
S COMMANDER ICE FOLLIES STARBURST SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S SPITFIRE S PRINCESS ANNE	DEC. 2	DEC. 2 - DEC. 16	DEC. 23	NO
DISCOVERY BLUEBELL QUEEN OF PINKS BRIDESMAID BRAVO BRONZE BRIDESMAID	DEC. 2	DEC. 2 - DEC. 23	DEC. 23	NO

BLOOM
Mar. 2
1964

S BONNAFFON DELUXE CLIPPER CHARM	NOV. 25	NOV. 25 - DEC. 16	DEC. 16	NO
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	NOV. 25	NOV. 25 - DEC. 23	DEC. 16	NO
ACHIEVEMENT BLUE RIDGE	DEC. 2	DEC. 2 - DEC. 16	DEC. 23	NO
S RED STAR CRITERION PERSONALITY HUMDINGER	DEC. 2	DEC. 9 - DEC. 23	DEC. 23	NO
S COMMANDER ICE FOLLIES STARBURST LITTLE AMERICA QUEEN'S LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S PRINCESS ANNE	DEC. 9	DEC. 9 - DEC. 23	DEC. 30	NO
DISCOVERY BLUEBELL QUEEN OF PINKS BRIDESMAID BRAVO BRONZE BRIDESMAID	DEC. 9	DEC. 9 - DEC. 30	DEC. 30	NO

Year-Round Pot Plant Schedule

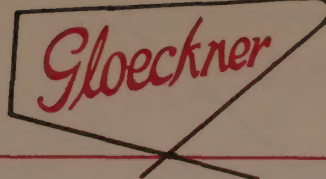
BLOOM
Mar. 9
1964

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S BONNAFFON DELUXE CLIPPER CHARM	DEC. 2	DEC. 2 - DEC. 23	DEC. 23	NO
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	DEC. 2	DEC. 2 - DEC. 30	DEC. 23	NO
ACHIEVEMENT BLUE RIDGE	DEC. 9	DEC. 9 - DEC. 23	DEC. 30	NO
S RED STAR CRITERION PERSONALITY HUMDINGER	DEC. 9	DEC. 9 - DEC. 30	DEC. 30	NO
S COMMANDER ICE FOLLIES STARBURST SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S PRINCESS ANNE	DEC. 16	DEC. 16 - DEC. 30	JAN. 6	NO
DISCOVERY BLUEBELL QUEEN OF PINKS BRIDESMAID BRAVO BRONZE BRIDESMAID	DEC. 16	DEC. 16 - JAN. 6	JAN. 6	NO

BLOOM
Mar. 16
1964

S BONNAFFON DELUXE CLIPPER CHARM	DEC. 9	DEC. 9 - DEC. 30	DEC. 30	NO
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	DEC. 9	DEC. 9 - JAN. 6	DEC. 30	NO
ACHIEVEMENT BLUE RIDGE	DEC. 16	DEC. 16 - DEC. 30	JAN. 6	NO
S RED STAR CRITERION PERSONALITY HUMDINGER	DEC. 16	DEC. 16 - JAN. 6	JAN. 6	NO
S COMMANDER ICE FOLLIES STARBURST SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S PRINCESS ANNE	DEC. 23	DEC. 23 - JAN. 6	JAN. 13	NO
DISCOVERY BLUEBELL QUEEN OF PINKS BRIDESMAID BRAVO BRONZE BRIDESMAID	DEC. 23	DEC. 23 - JAN. 13	JAN. 13	NO

S — For Single Stem Pots — Plant and Shade on Pinch Dates



BLOOM
Mar. 23
1964

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S BONNAFFON DELUXE CLIPPER CHARM	DEC. 16	DEC. 16 - JAN. 6	JAN. 6	NO
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	DEC. 16	DEC. 16 - JAN. 13	JAN. 6	NO
ACHIEVEMENT BLUE RIDGE	DEC. 23	DEC. 23 - JAN. 6	JAN. 13	NO
S CHALK CLIFF RED STAR CRITERION PERSONALITY HUMDINGER	DEC. 23	DEC. 23 - JAN. 13	JAN. 13	NO
S COMMANDER ICE FOLLIES STARBURST SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S PRINCESS ANNE	DEC. 30	DEC. 30 - JAN. 13	JAN. 20	NO
MONTY QUICKSILVER SNOWCLAD DISCOVERY BLUEBELL QUEEN OF PINKS BRIDESMAID BRAVO BRONZE BRIDESMAID	DEC. 30	DEC. 30 - JAN. 20	JAN. 20	NO

BLOOM
Mar. 30
1964

S BONNAFFON DELUXE CLIPPER CHARM	DEC. 23	DEC. 14 - JAN. 13	JAN. 13	NO
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	DEC. 23	DEC. 23 - JAN. 20	JAN. 13	NO
ACHIEVEMENT BLUE RIDGE	DEC. 30	DEC. 30 - JAN. 13	JAN. 20	NO
S CHALK CLIFF RED STAR CRITERION PERSONALITY HUMDINGER	DEC. 30	DEC. 30 - JAN. 20	JAN. 20	NO
S COMMANDER ICE FOLLIES STARBURST SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLDEN GATE S BRONZE PRINCESS ANNE S FLAXEN PRINCESS ANNE S PRINCESS ANNE CARESS	JAN. 6	JAN. 6 - JAN. 20	JAN. 27	NO
MONTY QUICKSILVER SNOWCLAD DISCOVERY BLUEBELL QUEEN OF PINKS BRIDESMAID BRAVO BRONZE BRIDESMAID	JAN. 6	JAN. 6 - JAN. 27	JAN. 27	NO

BLOOM
Apr. 6
1964

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S CRISTAL	DEC. 23	DEC. 23 - JAN. 20	JAN. 13	MAR. 9
BONNAFFON DELUXE	DEC. 30	DEC. 30 - JAN. 20	JAN. 20	MAR. 9
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	DEC. 30	DEC. 30 - JAN. 27	JAN. 20	MAR. 16
ACHIEVEMENT BLUE RIDGE	JAN. 6	JAN. 6 - JAN. 20	JAN. 27	MAR. 9
S CHALK CLIFF SCEPTER RED STAR CRITERION PERSONALITY HUMDINGER	JAN. 6	JAN. 6 - JAN. 27	JAN. 27	MAR. 16
S WILSON WHITE S MALOU S DARK WILSON'S YELLOW	JAN. 6	JAN. 6 - FEB. 3	JAN. 27	NO
S IND. VARIETIES S COMMANDER ICE FOLLIES STARBURST SNOW CRYSTAL QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS S FLAXEN PRINCESS ANNE S BRONZE PRINCESS ANNE S PRINCESS ANNE S PINK DELUXE CARESS	JAN. 13	JAN. 13 - JAN. 27	FEB. 3	MAR. 16
MONTY QUICKSILVER SNOWCLAD DISCOVERY QUEEN OF PINKS	JAN. 13	JAN. 13 - FEB. 3	FEB. 3	NO
BRIDESMAID BLUEBELL BRONZE BRIDESMAID	JAN. 20	JAN. 20 - FEB. 3	FEB. 10	NO
JOAN-ETTE GLORIA GARDENIA PEKING BLAZING GOLD CHEYENNE RADIANCE BRAVO PINKNIFICENT	JAN. 20	JAN. 20 - FEB. 10	FEB. 10	NO
CORSAGE CUSHION OSTOSA LARRY CHRIS. COLUMBUS JESSAMINE WILLIAMS DIAMOND YEL. CHRIS. COLUMBUS GAY BLADE ASTORIA CHARLES NYE KINGS RANSOM ETHEL WATERS MINNEHAHA MESABI LIPSTICK REMEMBRANCE RED MISCHIEF DOLLI-ETTE RUBY MOUND RUSTIC MINNPINK PURPLE WATERS SPELLBOUND CECELIA ANN LADYGO MISCHIEF JOYBRINGER RASPBERRY ICE ALERT NO. 2 FUCHSIA FAIRY JEWELTONE	JAN. 27	JAN. 27 - FEB. 17	FEB. 17	NO

BLOOM
Apr. 13
1964

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S CRISTAL	JAN. 6	JAN. 6 - JAN. 27	JAN. 20	MAR. 9
BONNAFFON DELUXE	JAN. 13	JAN. 13 - JAN. 27	JAN. 27	MAR. 12
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	JAN. 13	JAN. 13 - FEB. 3	JAN. 27	MAR. 19
ACHIEVEMENT BLUE RIDGE	JAN. 13	JAN. 13 - JAN. 27	FEB. 3	MAR. 12
S CHALK CLIFF JACKSTRAW SCEPTER RED STAR CRITERION PERSONALITY HUMDINGER	JAN. 20	JAN. 20 - FEB. 3	FEB. 3	MAR. 19
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	JAN. 20	JAN. 20 - FEB. 10	FEB. 3	MAR. 26
S IND. VARIETIES S COMMANDER ICE FOLLIES SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S FLAXEN PRINCESS ANNE S BRONZE PRINCESS ANNE S PRINCESS ANNE S PINK DELUXE CARESS	JAN. 27	JAN. 27 - FEB. 3	FEB. 10	MAR. 19
MONTY QUICKSILVER SNOWCLAD DISCOVERY QUEEN OF PINKS	JAN. 27	JAN. 27 - FEB. 3	FEB. 10	MAR. 26
BRIDESMAID BLUEBELL BRONZE BRIDESMAID	FEB. 3	FEB. 3 - FEB. 10	FEB. 17	MAR. 26
JOAN-ETTE GLORIA GARDENIA PEKING BLAZING GOLD CHEYENNE RADIANCE BRAVO PINKNIFICENT	FEB. 3	FEB. 3 - FEB. 17	FEB. 17	NO
CORSAGE CUSHION OSTOSA LARRY CHRIS. COLUMBUS JESSAMINE WILLIAMS DIAMOND YEL. CHRIS. COLUMBUS GAY BLADE ASTORIA CHARLES NYE KINGS RANSOM ETHEL WATERS MINNEHAHA MESABI LIPSTICK REMEMBRANCE RED MISCHIEF DOLLI-ETTE RUBY MOUND RUSTIC MINNPINK PURPLE WATERS SPELLBOUND CECELIA ANN LADYGO MISCHIEF JOYBRINGER RASPBERRY ICE ALERT NO. 2 FUCHSIA FAIRY JEWELTONE	FEB. 10	FEB. 10 - FEB. 24	FEB. 24	NO

Year-Round Pot Plant Schedule

BLOOM
Apr. 20
1964

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S CRISTAL	JAN. 13	JAN. 13 - FEB. 3	JAN. 27	MAR. 9
BONNAFFON DELUXE	JAN. 20	JAN. 20 - FEB. 3	FEB. 3	MAR. 9
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	JAN. 20	JAN. 20 - FEB. 10	FEB. 3	MAR. 16
ACHIEVEMENT BLUE RIDGE	JAN. 20	JAN. 20 - FEB. 3	FEB. 10	MAR. 9
S CHALK CLIFF SCEPTER JACKSTRAW RED STAR CRITERION PERSONALITY HUMDINGER	JAN. 27	JAN. 27 - FEB. 10	FEB. 10	MAR. 16
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	JAN. 27	JAN. 27 - FEB. 17	FEB. 10	MAR. 23
S IND. VARIETIES S COMMANDER ICE FOLLIES SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S FLAXEN PRINCESS ANNE S BRONZE PRINCESS ANNE S PRINCESS ANNE S PINK DELUXE CARESS	FEB. 3	FEB. 3 - FEB. 10	FEB. 17	MAR. 16
MONTY QUICKSILVER SNOWCLAD DISCOVERY QUEEN OF PINKS	FEB. 3	FEB. 3 - FEB. 17	FEB. 17	MAR. 23
BRIDESMAID BLUEBELL BRONZE BRIDESMAID	FEB. 10	FEB. 10 - FEB. 17	FEB. 24	MAR. 23
JOAN-ETTE GLORIA GARDENIA PEKING BLAZING GOLD CHEYENNE RADIANCE BRAVO PINKNIFICENT	FEB. 10	FEB. 17 - FEB. 24	FEB. 24	APR. 1
CORSAGE CUSHION OSTOSA LARRY CHRIS. COLUMBUS JESSAMINE WILLIAMS DIAMOND YEL. CHRIS. COLUMBUS GAY BLADE ASTORIA CHARLES NYE KINGS RANSOM ETHEL WATERS MINNEHAHA MESABI LIPSTICK REMEMBRANCE RED MISCHIEF DOLLI-ETTE RUBY MOUND RUSTIC MINNPINK PURPLE WATERS SPELLBOUND CECELIA ANN LADYGO MISCHIEF JOYBRINGER RASPBERRY ICE ALERT NO. 2 FUCHSIA FAIRY JEWELTONE	FEB. 17	FEB. 17 - MAR. 2	MAR. 2	APR. 6

Year-Round Pot Plant Schedule

Gloeckner

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BLOOM
Apr. 27
1964

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S CRISTAL	JAN. 20	JAN. 20 - FEB. 10	FEB. 3	MAR. 9
BONNAFFON DELUXE	JAN. 27	JAN. 27 - FEB. 10	FEB. 10	MAR. 9
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	JAN. 27	JAN. 27 - FEB. 17	FEB. 10	MAR. 16
ACHIEVEMENT BLUE RIDGE	JAN. 27	JAN. 27 - FEB. 10	FEB. 17	MAR. 9
S CHALK CLIFF SCEPTER JACKSTRAW RED STAR CRITERION PERSONALITY HUMDINGER	FEB. 3	FEB. 3 - FEB. 17	FEB. 17	MAR. 16
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	FEB. 3	FEB. 3 - FEB. 24	FEB. 17	MAR. 23
S IND. VARIETIES S COMMANDER ICE FOLLIES SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S FLAXEN PRINCESS ANNE S BRONZE PRINCESS ANNE S PRINCESS ANNE S PINK DELUXE CARESS	FEB. 10	FEB. 10 - FEB. 17	FEB. 24	MAR. 16
MONTY QUICKSILVER SNOWCLAD DISCOVERY QUEEN OF PINKS	FEB. 10	FEB. 10 - FEB. 24	FEB. 24	MAR. 23
MERCURY BRIDESMAID BLUEBELL BRONZE BRIDESMAID	FEB. 17	FEB. 17 - FEB. 24	MAR. 2	MAR. 23
JOAN-ETTE GLORIA GARDENIA PEKING BLAZING GOLD CHEYENNE RADIANCE BRAVO PINKNIFICENT	FEB. 17	FEB. 17 - MAR. 2	MAR. 2	APR. 1
CORSAGE CUSHION OSTOSA LARRY CHRIS. COLUMBUS JESSAMINE WILLIAMS DIAMOND YEL. CHRIS. COLUMBUS GAY BLADE ASTORIA CHARLES NYE KINGS RANSOM ETHEL WATERS MINNEHAHA MESABI LIPSTICK REMEMBRANCE RED MISCHIEF DOLLI-ETTE RUBY MOUND RUSTIC MINNPINK PURPLE WATERS SPELLBOUND CECELIA ANN LADYGO MISCHIEF JOYBRINGER RASPBERRY ICE ALERT NO. 2 FUCHSIA FAIRY JEWELTONE	FEB. 24	FEB. 24 - MAR. 9	MAR. 9	APR. 6

S — For Single Stem Pots — Plant and Shade on Pinch Dates

Year-Round Pot Plant Schedule

BLOOM
May 4
1964

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
S CRISTAL	JAN. 27	JAN. 27 - FEB. 17	FEB. 10	MAR. 9
BONNAFFON DELUXE	FEB. 3	FEB. 3 - FEB. 17	FEB. 17	MAR. 9
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S MERMAID	FEB. 3	FEB. 3 - FEB. 24	FEB. 17	MAR. 16
ACHIEVEMENT BLUE RIDGE	FEB. 10	FEB. 10 - FEB. 17	FEB. 24	MAR. 9
CHALK CLIFF JACKSTRAW SCEPTER S YELLOW STAR S RED STAR S CRITERION S PERSONALITY S HUMDINGER	FEB. 10	FEB. 10 - FEB. 24	FEB. 24	MAR. 16
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	FEB. 10	FEB. 10 - MAR. 2	FEB. 24	MAR. 23
S IND. VARIETIES S ICE FOLLIES S COMMANDER S SNOW CRYSTAL S STARBURST S QUEEN'S LACE S GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLD LACE S FLAXEN PRINCESS ANNE S BRONZE PRINCESS ANNE S PRINCESS ANNE S PINK DELUXE S CARESS	FEB. 17	FEB. 17 - FEB. 24	MAR. 2	MAR. 16
MONTY QUICKSILVER SNOWCLAD DISCOVERY QUEEN OF PINKS	FEB. 17	FEB. 17 - MAR. 2	MAR. 2	MAR. 23
MERCURY BRIDESMAID BLUEBELL	FEB. 24	FEB. 24 - MAR. 2	MAR. 9	MAR. 23
JOAN-ETTE GLORIA GARDENIA PEKING BLAZING GOLD CHEYENNE RADIANCE BRAVO PINKNIFICENT	FEB. 24	FEB. 24 - MAR. 9	MAR. 9	APR. 1
CORSAGE CUSHION OSTOSA LARRY CHRIS. COLUMBUS JESSAMINE WILLIAMS DIAMOND YEL. CHRIS. COLUMBUS GAY BLADE ASTORIA CHARLES NYE KINGS RANSOM ETHEL WATERS MINNEHAHA MESABI LIPSTICK REMEMBRANCE RED MISCHIEF DOLLI-ETTE RUBY MOUND RUSTIC MINNPINK PURPLE WATERS SPELLBOUND CECELIA ANN LADYGO MISCHIEF JOYBRINGER RASPBERRY ICE ALERT NO. 2 FUCHSIA FAIRY JEWELTONE	MAR. 2	MAR. 2 - MAR. 16	MAR. 16	APR. 6

BLOOM
May 11
1964

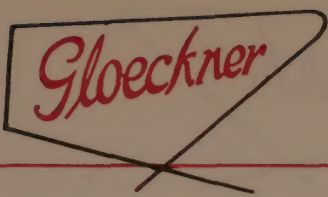
VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
BONNAFFON DELUXE	FEB. 10	FEB. 10 - FEB. 24	FEB. 24	MAR. 9
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S MERMAID	FEB. 10	FEB. 10 - MAR. 2	FEB. 24	MAR. 16
ACHIEVEMENT BLUE RIDGE	FEB. 17	FEB. 17 - FEB. 24	MAR. 2	MAR. 9
S CHALK CLIFF S JACKSTRAW S SCEPTER S YELLOW STAR S RED STAR S CRITERION S PERSONALITY S HUMDINGER	FEB. 17	FEB. 17 - MAR. 2	MAR. 2	MAR. 16
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	FEB. 17	FEB. 17 - MAR. 9	MAR. 2	MAR. 23
S IND. VARIETIES S ICE FOLIES S COMMANDER S SNOW CRYSTAL S STARBURST S QUEEN'S LACE S GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLD LACE S FLAXEN PRINCESS ANNE S BR. PRINCESS ANNE S PRINCESS ANNE S PINK DELUXE S CARESS	FEB. 24	FEB. 24 - MAR. 2	MAR. 9	MAR. 16
MONTY QUICKSILVER SNOWCLAD DISCOVERY QUEEN OF PINK	FEB. 24	FEB. 24 - MAR. 9	MAR. 9	MAR. 23
MERCURY BRIDESMAID BLUEBELL	MAR. 2	MAR. 2 - MAR. 9	MAR. 16	MAR. 23
JOAN-ETTE GLORIA GARDENIA PEKING BLAZING GOLD CHEYENNE RADIANCE BRAVO PINKNIFICENT	MAR. 2	MAR. 2 - MAR. 16	MAR. 16	APR. 1
CORSAGE CUSHION OSTOSA LARRY CHRIS. COLUMBUS JESSAMINE WILLIAMS DIAMOND YEL. CHRIS. COLUMBUS GAY BLADE ASTORIA CHARLES NYE KINGS RANSOM ETHEL WATERS MINNEHAHA MESABI LIPSTICK REMEMBRANCE RED MISCHIEF DOLLI-ETTE RUBY MOUND RUSTIC MINNPINK PURPLE WATERS SPELLBOUND CECELIA ANN LADYGO MISCHIEF JOYBRINGER RASPBERRY ICE ALERT NO. 2 FUCHSIA FAIRY JEWELTONE	MAR. 9	MAR. 9 - MAR. 23	MAR. 23	APR. 6

Year-Round Pot Plant Schedule

BLOOM
May 18
1964

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
BONNAFFON DELUXE	FEB. 17	FEB. 17 - MAR. 2	MAR. 2	MAR. 9
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S MERMAID	FEB. 17	FEB. 17 - MAR. 9	MAR. 2	MAR. 16
ACHIEVEMENT BLUE RIDGE	FEB. 24	FEB. 24 - MAR. 2	MAR. 9	MAR. 9
CHALK CLIFF JACKSTRAW SCEPTER S YELLOW STAR S RED STAR S CRITERION S PERSONALITY S HUMDINGER	FEB. 24	FEB. 24 - MAR. 9	MAR. 9	MAR. 16
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	FEB. 24	FEB. 24 - MAR. 16	MAR. 9	MAR. 23
S IND. VARIETIES S ICE FOLLIES S COMMANDER S SNOW CRYSTAL S STARBURST S QUEEN'S LACE S GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLD LACE S FLAXEN PRINCESS ANNE S BR. PRINCESS ANNE S PRINCESS ANNE S PINK DELUXE S CARESS	MAR. 2	MAR. 2 - MAR. 9	MAR. 16	MAR. 16
MONTY QUICKSILVER SNOWCLAD DISCOVERY QUEEN OF PINK	MAR. 2	MAR. 2 - MAR. 16	MAR. 16	MAR. 23
MERCURY BRIDESMAID BLUEBELL	MAR. 9	MAR. 9 - MAR. 16	MAR. 23	MAR. 23
JOAN-ETTE GLORIA GARDENIA PEKING BLAZING GOLD S CHEYENNE RADIANCE BRAVO PINKNIFICENT	MAR. 9	MAR. 9 - MAR. 23	MAR. 23	APR. 1
CORSAGE CUSHION OSTOSA LARRY CHRIS. COLUMBUS JESSAMINE WILLIAMS DIAMOND YEL. CHRIS. COLUMBUS GAY BLADE ASTORIA CHARLES NYE YELLOW SPOON KINGS RANSOM ETHEL WATERS MINNEHAHA MESABI LIPSTICK REMEMBRANCE RED MISCHIEF DOLLI-ETTE RUBY MOUND RUSTIC MINNPINK PURPLE WATERS SPELLBOUND CECELIA ANN LADYGO MISCHIEF JOYRRINGER RASPBERRY ICE ALERT NO. 2 FUCHSIA FAIRY JEWELTONE	MAR. 16	MAR. 16 - MAR. 30	MAR. 30	APR. 6

S — For Single Stem Pots — Plant and Shade on Pinch Dates



BLOOM
May 25
1964

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
BONNAFFON DELUXE	FEB. 24	FEB. 24 - MAR. 9	MAR. 9	MAR. 9
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S MERMAID	FEB. 24	FEB. 24 - MAR. 16	MAR. 9	MAR. 16
ACHIEVEMENT BLUE RIDGE	MAR. 2	MAR. 2 - MAR. 9	MAR. 16	MAR. 9
CHALK CLIFF JACKSTRAW SCEPTER S YELLOW STAR S RED STAR S CRITERION S PERSONALITY S HUMDINGER	MAR. 2	MAR. 2 - MAR. 16	MAR. 16	MAR. 16
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	MAR. 2	MAR. 2 - MAR. 23	MAR. 16	MAR. 23
S IND. VARIETIES S SNOW CRYSTAL S COMMANDER S STARBURST S QUEEN'S LACE S GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLD LACE S FLAXEN PRINCESS ANNE S BR. PRINCESS ANNE S PRINCESS ANNE S PINK DELUXE S CARESS	MAR. 9	MAR. 9 - MAR. 16	MAR. 23	MAR. 16
MONTY QUICKSILVER SNOWCLAD DISCOVERY QUEEN OF PINKS	MAR. 9	MAR. 9 - MAR. 23	MAR. 23	MAR. 23
MERCURY BRIDESMAID BLUEBELL	MAR. 16	MAR. 16 - MAR. 23	MAR. 30	MAR. 23
JOAN-ETTE GLORIA GARDENIA PEKING BLAZING GOLD CHEYENNE RADIANCE BRAVO PINKNIFICENT	MAR. 16	MAR. 16 - MAR. 30	MAR. 30	APR. 1
CORSAGE CUSHION OSTOSA LARRY CHRIS. COLUMBUS JESSAMINE WILLIAMS DIAMOND YEL. CHRIS. COLUMBUS GAY BLADE ASTORIA CHARLES NYE KINGS RANSOM ETHEL WATERS MINNEHAHA MESABI LIPSTICK REMEMBRANCE RED MISCHIEF DOLLI-ETTE RUBY MOUND RUSTIC MINNPINK PURPLE WATERS SPELLBOUND CECELIA ANN LADYGO MISCHIEF JOYBRINGER RASPBERRY ICE ALERT NO. 2 FUCHSIA FAIRY JEWELTONE	MAR. 23	MAR. 23 - APR. 6	APR. 6	APR. 6

Year-Round Pot Plant Schedule

BLOOM
June 1
1964

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
BONNAFFON DELUXE	MAR. 9	MAR. 9 - MAR. 16	MAR. 16	MAR. 16
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	MAR. 9	MAR. 9 - MAR. 23	MAR. 16	MAR. 23
S CHALK CLIFF S JACKSTRAW S SCEPTER S YELLOW STAR S RED STAR S CRITERION S PERSONALITY S HUMDINGER	MAR. 16	MAR. 16 - MAR. 23	MAR. 23	MAR. 23
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	MAR. 16	MAR. 16 - MAR. 30	MAR. 23	MAR. 30
S IND. VARIETIES S SNOW CRYSTAL S STARBURST S QUEEN'S LACE S GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLD LACE S FLAXEN PRINCESS ANNE S BR. PRINCESS ANNE S PRINCESS ANNE S CARESS	MAR. 23	NO	APR. 6	MAR. 23
MONTY QUICKSILVER SNOWCLAD DISCOVERY	MAR. 23	MAR. 23 - MAR. 30	MAR. 30	MAR. 30
MERCURY BRIDESMAID BLUEBELL BRAVO	MAR. 30	NO	APR. 6	MAR. 30

BLOOM
June 8
1964

BONNAFFON DELUXE	MAR. 16	MAR. 16 - MAR. 23	MAR. 23	MAR. 23
S OREGON YELLOW DELAWARE DELAWARE WARHAWK MERMAID	MAR. 16	MAR. 16 - MAR. 30	MAR. 23	MAR. 30
S CHALK CLIFF S JACKSTRAW S SCEPTER S YELLOW STAR S RED STAR S CRITERION S PERSONALITY S HUMDINGER	MAR. 23	MAR. 23 - MAR. 30	MAR. 30	MAR. 30
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	MAR. 23	MAR. 23 - APR. 6	APR. 6	APR. 6
S IND. VARIETIES S SNOW CRYSTAL S STARBURST S QUEEN'S LACE S GOLDEN CRYSTAL S GOLDEN YEL. PRINCESS ANNE S CREAM YEL. PRINCESS ANNE S GOLD LACE S FLAXEN PRINCESS ANNE S BR. PRINCESS ANNE S PRINCESS ANNE S CARESS	MAR. 30	NO	APR. 13	MAR. 30
MONTY QUICKSILVER SNOWCLAD DISCOVERY	MAR. 30	MAR. 30 - APR. 6	APR. 13	APR. 6
MERCURY BRIDESMAID BLUEBELL BRAVO	APR. 6	NO	APR. 20	APR. 6

S — For Single Stem Pots — Plant and Shade on Pinch Dates

BLOOM
June 15
1964

VARIETIES	PLANT 5 OR 6 CUTTINGS IN 6" POT	LIGHTING PERIOD	PINCH	SHADE
BONNAFFON DELUXE	MAR. 23	MAR. 23 - MAR. 30	APR. 6	MAR. 30
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S MERMAID	MAR. 23	MAR. 23 - APR. 6	APR. 6	APR. 6
S JACKSTRAW S SCEPTER S YELLOW STAR S RED STAR S CRITERION S PERSONALITY	MAR. 30	MAR. 30 - APR. 6	APR. 13	APR. 6
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	MAR. 30	MAR. 30 - APR. 13	APR. 13	APR. 13
SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE CARESS	APR. 6	NO	APR. 20	APR. 6
MONTY QUICKSILVER SNOWCLAD DISCOVERY	APR. 6	APR. 6 - APR. 13	APR. 20	APR. 13
MERCURY BRIDESMAID BLUEBELL BRAVO	APR. 13	NO	APR. 27	APR. 13

BLOOM
June 22
1964

BONNAFFON DELUXE	MAR. 30	MAR. 30 - APR. 6	APR. 13	APR. 6
S OREGON S YELLOW DELAWARE S DELAWARE S WARHAWK S MERMAID	MAR. 30	MAR. 30 - APR. 13	APR. 13	APR. 13
S JACKSTRAW S SCEPTER S YELLOW STAR S RED STAR S CRITERION S PERSONALITY	APR. 6	APR. 6 - APR. 13	APR. 20	APR. 13
S WILSON'S WHITE S MALOU S DARK WILSON'S YELLOW	APR. 6	APR. 6 - APR. 20	APR. 20	APR. 20
SNOW CRYSTAL STARBURST QUEEN'S LACE GOLDEN CRYSTAL GOLD LACE CARESS	APR. 13	NO	APR. 27	APR. 13
MONTY QUICKSILVER SNOWCLAD DISCOVERY	APR. 13	APR. 13 - APR. 20	APR. 27	APR. 20
MERCURY BRIDESMAID BLUEBELL BRAVO	APR. 20	NO	MAY 4	APR. 20

PINKNIFICENT— New Pink Garden Fujii

Oct. 15 (8 week Medium treatment)—A smooth light pink companion for Joan-Ette in the garden and for spring pots with either medium or no light, no shade treatment. Disbudding is recommended as the flower is large and the sprays are inclined to clubbiness. This also makes it flower a week earlier. A pink Fujii mum for the garden has long been needed. It is larger than Joan-Ette and stronger in its growth habit. Spring pot response is uniform.

Available February 4, 1963.

Price \$74.00 per 1000

BGA SPITFIRE— New Red Pot Mum

Nov. 5 (10 week Tall treatment)—This is the red that really holds and times right along with the Princess Annes. Winter size is about that of Personality with a semi-incurved, formal form. Like Mermaid, size is reduced in summer. Spitfire breaks and spreads well. It has a gloss and sheen to its color that is comparable to the pompon Rubaiyat. The color also holds well the year round and height is just right when pots are not crowded. It has no trace of bronze that all other red pots suffer from. Attains maximum peak of color and form in November through April pot programs with special Christmas and Valentine's Day value.

Available June 1963.

Price \$60.00 per 1000 + Royalty

BGA BRAVO—New Pink Pot

Oct. 23 (8 week Medium treatment)—Intermediate standard for pots. Deep pink. Single stem or pinched there are few, if any varieties that can match Bravo's fast response and uniformly produce so many large, quality blooms.

During high temperature, summer periods the color will fade but if used quickly, it is highly acceptable. It performs well with air cooling. It responds rapidly to Phosfon but dwarfing is seldom required.

In cooler periods of fall, winter and spring the color is very similar to Blue Ridge, sometimes deeper.

The sharp, fast response of Bravo combined with its prolific breaking action results in a very efficient, showy variety. Because it opens rapidly, growers should be prepared to sell it when it is prime. It holds up well under average room temperature environments.

Available June 1963.

Price \$60.00 per 1000 + Royalty

BGA CRISTAL—New Pink Pot (Pat. 2119)

Nov. 17 (11 week Short treatment)—Intermediate standard for pots. It spreads well and responds uniformly in the spring and fall. Winter response is improved by a warmer 65° minimum temperature for initiation and early stages of development.

Cristal has a smart, appealing form and is considerably larger than Mermaid.

Height is as short and sometimes is shorter than Delaware.

The color will fade and the variety will stall with high summer temperatures. It can be flowered satisfactorily from November through May with Easter and Mother's Day its peak value periods. Short treatment is essential.

Price \$74.00 per 1000

YELLOW STAR—New Yellow Pot Mum

Nov. 5 (10 week Medium treatment)—We have studied many yellow sports of Red Star in an effort to find a true yellow. This one is the best to date. Yellow Star can be recommended only for summer and in areas where finishing temperatures are high. When finished cool, it streaks bronze. This sport responds superbly to Phosfon. The flower is larger and keeping quality is improved with its use. Growers who have tried Yellow Star are enthusiastic in their claims that it is their best summer yellow pot. Southern growers especially will find it a "must have" during high temperature periods. It is then as deep as Golden Yellow Princess Anne.

Available February 4, 1963.

Price \$74.00 per 1000



YELLOW STAR

New Standard Varieties

GIANT #4 IND. YELLOW— New Yellow Standard

Nov. 5 (10 week)—Clear yellow sport from the Giant #4 Ind. White. All growers recognize the need for size in their standards. This new sport is about 2" larger than any of the presently available Indianapolis Yellows. It retains the same depth and diameter of the Giant #4 Ind. White developing a similar open flower form. It has the good, incurved winter form of its parent which is equal or better than the #3 Ind. White.

The clear yellow color is identical to the present Indianapolis Yellow. When finished cool it does not tinge bronze as extensively as the Imp. Ind. Yellow.

It has at least 3" more vigor than Indianapolis Yellow.

Price \$62.00 per 1000

BGA McKINLEY—New Early Yellow Standard

Oct. 25 (9 week)—Deep yellow. It is very tall and vigorous and always the first variety to cut. It is easily kept shorter by giving it 10 week timing or one less long day week than for the 9 week group. Initiates and develops at 56° and requires high light conditions for best finishing quality. Flowers are 4-5" and are very heat resistant. Some problems with long necks have been observed when temperatures are very high. Early disbudding therefore is important. Its vigor lends itself well to the fast disbud program where it combines with Bluebird, Donlope's White Spider and White Pink Chief to provide excellent medium sized mums. It is a durable shipper and tolerates lower than the normal 60° minimum. The smaller diameter of the flower is offset by its fine depth. Can be highly recommended for outdoor culture where durability and fast response are favored over size. April through October.

Available June 1963.

Price \$74.00 per 1000

#2 GOOD NEWS

Nov. 1 (9 week)—A more vigorous selection of Good News that consistently finishes several inches taller than the original variety.

Some tests have shown a significant increase of size in the #2 over the original. Other tests have not sustained this observation.

During the cool finishing period of October this selection has a shade lighter reverse color with somewhat smoother petals and better form.

Available June 1963.

Price \$74.00 per 1000

#2 YELLOW ALBATROSS

Nov. 1 (9 week)—A new lemon yellow incurved standard. Selected from Improved Albatross and with the same fine form as the improved.

Available June 1963.

Price \$64.00 per 1000



BGA McKINLEY

New Varieties of Spiders

#2 DONLOPE'S WHITE SPIDER— New Sport

Nov. 1 (9 week)—A straight tube mutation from Donlope's White Spider. The tubes are also more narrow and the effect is a white color with less of the original ivory overcast. This is a far more artistic and beautiful form than the original variety. It does not tangle as easily. It more closely resembles the form of White Rayonnante plus the known vigor and response of its own fine parent. Better form and color clarity are its major assets.

Available February 4, 1963.

Price \$68.00 per 1000

SILVER STRAND—New Addition

Oct. 25 (9 week)—Large white spider. Very uniform, fast response. Responds with Luyona. Shorter and whiter than Donlope's White Spider. Requires high light conditions to obtain sufficient stem strength. Needs cool finish to offset sensitivity to sunburn. In Southern California, Silver Strand has shown an outstanding resistance to smog injury.

Has been recommended for pots with Tall treatment. Our tests show that it lacks the stem strength required and needs staking.

\$64.00 per 1000

New Varieties - Pompons, Singles & Anemones

BGA PINK MARBLE—New Pink Daisy

Oct. 25 (9 week)—Intermediate daisy. Color is a Parisienne pink. A strong, productive grower that closely resembles the habit and response of Alabaster. Pink Marble develops and holds well a fine green eye or green disk that sheds little or no pollen.

Pink Marble was bred to improve the low temperature tolerance of Excello. It provides a fast, responsive pink partner to the white Alabaster. Sunbeam in yellow and Tuneful in bronze complete a foursome that are dependable, beautiful and profitable. Regular and fast crop sprays May through October. Superb for Mother's Day.

Price \$60.00 per 1000 + Royalty

BGA THUNDERBOLT—New White Anemone

Nov. 1 (9 week)—Few, if any, late 8, early 9 week varieties can outproduce this new white anemone. Years of intensive breeding to reduce cushion development and provide a tight, crested daisy that is pure white over the entire flower surface have successfully achieved this new form. The small cushion, no larger than a quarter, provides the highly desired, 'fresh as a daisy' appearance. The crested cushion prevents any pollen from blackening the pure white centers. Thunderbolt is vigorous enough for regular and fast crops from May through October. It has excellent heat tolerance and flowers with Cloud-bank.

Available February 4, 1963.

Price \$60.00 per 1000 + Royalty



BGA PINK MARBLE



BGA THUNDERBOLT



LIGHT YELLOW ICEBERG

BGA CYCLONE—New White Pompon

Nov. 8 (10 week)—Intermediate formal white pompon that attains a pure white color like Pristine. Cyclone has a vigorous growth habit with strong stem and sprays. It is superior to Iceberg in production. Cyclone is sensitive to cool 60° temperatures and achieves a state of perfection unmatched by any other white pompon when temperatures are held to a warm 60°, light conditions are high and nutrition is medium. At cool 60° or lower it is clubby with uneven response. Avoid luxuriant feeding and soft growth. Try finishing it on its own fat. Use it during the June through mid-November period. A flawless shipper and keeper.

Available February 4, 1963.

Price \$60.00 per 1000 + Royalty



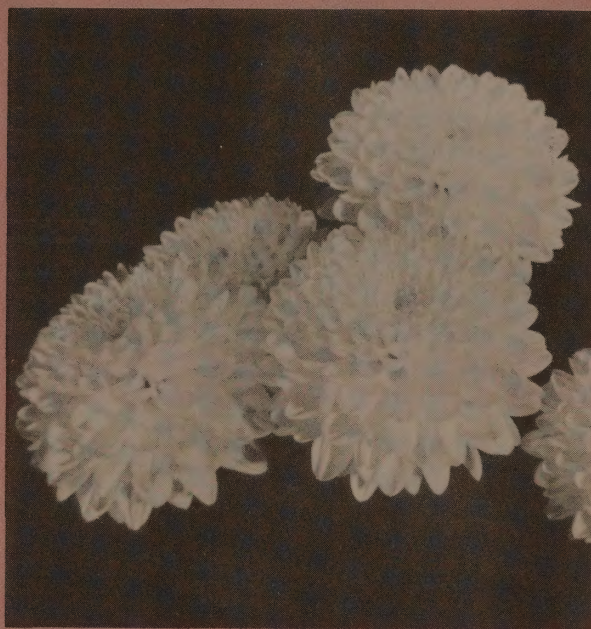
BGA WHITE SANDS

LIGHT YELLOW ICEBERG— New Yellow Sport

Nov. 5 (10 week)—Primrose yellow sport from Iceberg. The color is closely identical to that of Yellow Shasta. In the past there has been some resistance to these beautiful, lighter pastels. Growers and wholesalers now realize that the discriminate retail florist and the public love them for their versatile, harmonious value. Light Yellow Iceberg has the same growth habit, vigor, size and response of its parent with good color all summer.

Available February 4, 1963.

Price \$74.00 per 1000



BGA CYCLONE

BGA WHITE SANDS— New White Anemone

Nov. 12 (10 week)—Have you ever wished for more production on Shasta? Have you ever complained about its slow response in summer? White Sands solves these problems with a degree of durability and shipping quality that sets a new record for anemones. Its growth, foliage and spray formation resemble Delight. It is smart, clean and one of the easiest varieties to grow we know of. The flower is a little smaller than Shasta and handles better. The cushion is smaller and its slow cushion development makes it more desirable than Shasta. In years of testing, its performance has been consistently superior to Shasta for production, response and quality during the period of April through mid-November in regular and fast programs. White Sands display little or no pink tinging with cool finish and always produces good open sprays.

Available February 4, 1963.

Price \$60.00 per 1000 + Royalty

BGA YELLOW SKYLINE

Nov. 12 (10 week)—Deep yellow sport of skyline. Has same large flower and growing habits of skyline.

Available June 1963. Price \$60.00 per 1000 + Royalty



BGA TOPAZ

BGA TOPAZ—New Yellow Button

Nov. 12 (10 week)—There is much evidence of an important upswing in the call for smaller, formal pompons with class and sparkle to add variety to the steady supply of Iceberg and Chips. In small yellow pompons Topaz has production. It has unmatched form and quality with a response that improves Golden Bantam. The sprays are open and compounded. Growth is free and vigorous. It cuts a few days following Iceberg. Good in regular and fast crops April through mid-November. Topaz will tolerate outdoor conditions flawlessly.

Available February 4, 1963.

Price \$60.00 per 1000 + Royalty

**BGA BRONZE CHEERFUL—
New Bronze Pom**

Nov. 12 (10 week)—Rich, rust bronze pompon. Color has lots of appeal. Vigor, habit and production are the same as its parent Cheerful.

Bronze Cheerful fades under high summer temperatures. Its maximum value is in the spring and fall. It is a superb cloth house variety and fine shipper.

Price \$60.00 per 1000 + Royalty

**BGA BRIGHT'N CHEERFUL—
New Pink Pom****Same flowering as Bluechip**

Nov. 12 (10 week)—A bright and deep pink sport from Cheerful that provides good pink color all summer. Bright'N Cheerful has the same smart growth habit and good terminal spray formation as its parent. It handles well. It is easily grown.

Price \$60.00 per 1000 + Royalty

BGA GOLDFLO

Dec. 10 (13 week)—New sport of Iceflo. A yellow pompon.

Available June 1963. Price \$60.00 per 1000 + Royalty

BGA. Breeder-grower Agreement

See inside of Front Cover for complete schedule of pricing. Per 1000 rate quotes is per 1000 for orders placed 22 weeks in advance of shipping.

BGA — Breeder-Grower Agreement Varieties
R — Royalty of 1.4¢ per cutting extra
† — Available Feb. 4, 1963
* — Available June 1963

7 WEEK VARIETIES

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
WHITE			
WHITE FROST	Ivory disbud	Sept. 20	116.00
FULL MOON	White standard	Sept. 25	116.00
White Cushion	White duplex pompon	Sept. 25	58.00
Ostosa	Intermediate paper white pompon	Sept. 25	52.00
Larry	Intermediate paper white pompon	Oct. 1	60.00
Candleglow	Ivory pompon	Oct. 1	64.00
Chris. Columbus	Intermediate cream decorative	Oct. 1	60.00
Jessamine Williams	White spoon decorative	Oct. 1	58.00
Corsage Cushion	Serrated white decorative	Oct. 1	62.00
Horizon	White pompon	Oct. 5	52.00
BGA Diamond	Intermediate white pompon	Oct. 5	54.00 + R
YELLOW			
GOLD DUST	Yellow disbud	Sept. 10	116.00
YELLOW FROST	Yellow disbud	Sept. 20	116.00
GOLDEN ARROW	Deep yellow incurve	Sept. 25	116.00
YELLOW MOON	Yellow incurve	Sept. 25	116.00
Golden Cushion	Golden yellow pompon	Sept. 25	56.00
Yellow Chris.	Intermediate lemon yellow decorative	Oct. 1	58.00
Columbus			
BGA Gay Blade	Bright yellow miniature spider	Oct. 1	50.00 + R
Astoria	Yellow pompon	Oct. 5	60.00
Charles Nye	Yellow pompon	Oct. 5	58.00
Yellow Spoon	Yellow spoon single	Oct. 5	70.00
Polaris	Deep yellow daisy	Oct. 5	60.00
Kings Ransom	Intermediate golden yellow decorative	Oct. 10	58.00
Bright Forecast	Small yellow pompon	Oct. 10	66.00
Ethel Waters	Large lemon yellow pompon	Oct. 10	58.00
BRONZE & RED			
BRONZE SONG	Brick bronze	Sept. 15	116.00
Minnehaha	Small Coral bronze pompon	Sept. 15	58.00
Mesabi	Small rust bronze pompon	Sept. 20	72.00
INDIAN SUMMER	Red bronze decorative	Sept. 20	116.00
PUMPKIN	Orange bronze semi-incurve	Sept. 20	116.00
RED PUMPKIN	Red bronze semi-incurve	Sept. 20	116.00
Commander Cushion	Red duplex pompon	Sept. 25	58.00
Ruby Mound	Ruby red decorative	Sept. 25	58.00
Champion Cushion	Deep bronze pompon	Sept. 25	58.00
AUTUMN LEAVES	Orange bronze standard	Sept. 25	116.00
Lipstick	Small burgundy red cushion pompon	Oct. 5	58.00
Huntsman	Red-bronze decorative	Oct. 5	54.00
Rustic	Rust bronze pompon	Oct. 5	70.00
Remembrance	Carmin red pompon	Oct. 5	60.00
Red Mischief	Deep red daisy	Oct. 10	58.00
Dolli-Ette	Intermediate golden bronze spoon	Oct. 10	62.00
Carnival	Orange red pompon	Oct. 10	70.00
PINK			
SEPTEMBER SONG	Pink semi-incurve	Sept. 15	116.00
TOUCHDOWN	Pink semi-incurve	Sept. 20	116.00
Minnpink	Small coral pink pompon	Sept. 25	58.00
Purple Waters	Intermediate deep purple pompon	Sept. 25	58.00
Major Cushion	Pink duplex pompon	Sept. 25	58.00
Spellbound	Lavender decorative	Oct. 1	58.00
Cecelia	Intermediate deep pink decorative	Oct. 1	60.00
Jeweltone	Rose pink pompon	Oct. 1	70.00
Ann Ladygo	Small bright pink anemone	Oct. 5	56.00
Mischief	Dark purple daisy	Oct. 10	58.00
Joybringer	Salmon rose pompon	Oct. 10	58.00
BGA Raspberry Ice	Small raspberry pink pompon	Oct. 10	60.00 + R
Alert	Intermediate purple decorative	Oct. 14	64.00
Fuchsia Fairy	Small deep pink decorative	Oct. 14	70.00
#2 Fuchsia Fairy	Pink decorative	Oct. 14	54.00

Prices quoted above and on the following pages are based on bookings 22 weeks prior to shipping date. Please refer to inside of front cover for complete pricing details.

8 WEEK VARIETIES

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
WHITE			
Blizzard	Formal white pompon	Oct. 15	56.00
BGA Echo	Small white pompon	Oct. 15	52.00 + R
Joan-Ette	Large ivory white quill type spider	Oct. 15	56.00
Gardenia	Large white decorative	Oct. 15	60.00
YELLOW			
Yellow Calumet	Yellow pompon	Oct. 15	60.00
Gold Lode	Lemon yellow reflex	Oct. 15	66.00
Peking	Intermediate primrose yellow decorative	Oct. 15	62.00
BGA Top Flight	Deep yellow anemone	Oct. 20	58.00 + R
BRONZE & RED			
RED SKIN	Red decorative	Oct. 1	116.00
Resolute	Red bronze pompon	Oct. 15	70.00
Amber Bright	Golden bronze decorative	Oct. 15	54.00
Calumet	Golden bronze pompon	Oct. 15	62.00
Dark Calumet	Deep bronze pompon	Oct. 15	66.00
Rajah	Red daisy	Oct. 15	58.00
Cheyenne	Large bright red decorative	Oct. 15	60.00
Radiance	Intermediate red decorative	Oct. 15	62.00
PINK			
†PINKNIFICENT	Light pink Fujii	Oct. 15	74.00
Accolade	Coral pink decorative	Oct. 15	62.00
Enterprise	Small pink pompon	Oct. 15	66.00
Pink Chief	Incurve standard	Oct. 15	52.00
Major Bowes	Pink incurve	Oct. 20	60.00

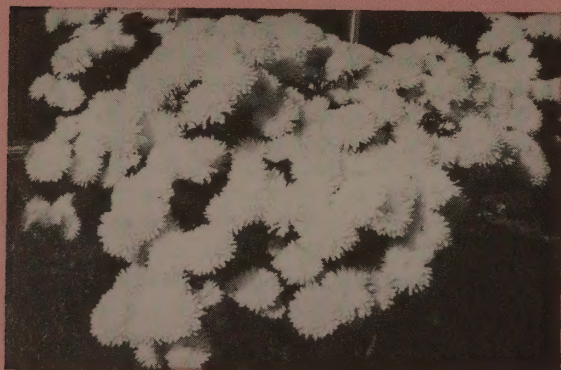
R — Royalty 1.4¢ per cutting



DIAMOND



RUBY MOUND



JESSAMINE WILLIAMS



GAY BLADE

8 WEEK VARIETIES

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
WHITE			
Joan-Ette Gardenia	Large ivory white quill type spider	Oct. 15	56.00
	Large white decorative	Oct. 15	60.00
YELLOW			
Peking Blazing Gold	Intermediate primrose yellow decorative	Oct. 15	62.00
	Intermediate golden yellow semi-incurve	Oct. 23	54.00
PINK			
*BGA BRAVO	Pink decorative	Oct. 23	60.00 + R

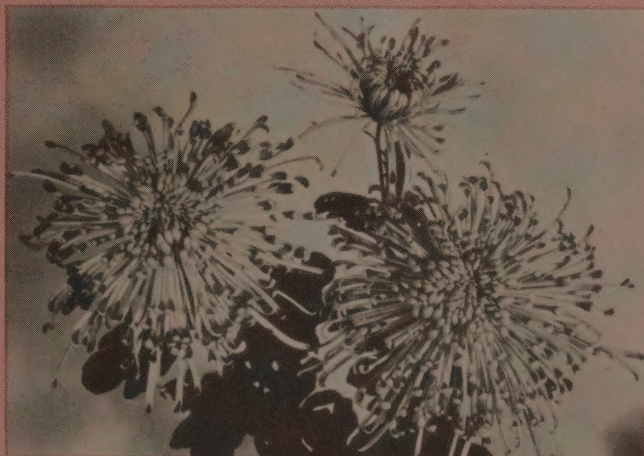
9 WEEK VARIETIES

WHITE			
Monty BGA Quicksilver SILVER STRAND BGA Mercury BGA Snowclad Queen's Lace Wilson's White Poitevine Supreme Malou	Intermediate white decorative	Oct. 25	66.00
	Large pure white decorative	Oct. 25	46.00 + R
	White spider	Oct. 25	64.00
	Large white decorative	Oct. 25	54.00 + R
	Portrait size paperwhite decorative	Nov. 1	46.00 + R
	White spider	Nov. 1	48.00
	Large paperwhite decorative	Nov. 1	60.00
	Intermediate white decorative	Nov. 1	70.00
	Intermediate incurve, chalk white	Nov. 1	58.00
	YELLOW		
BGA Discovery Gold Lace Dark Wilson's Yellow	Large deep yellow decorative	Oct. 28	60.00 + R
	Golden yellow spider	Nov. 1	48.00
	Color intensification of Wilson's Yellow	Nov. 1	70.00
BRONZE & RED			
Bronze Bridesmaid	Bronze Spider sport	Nov. 1	64.00
PINK			
*BGA BLUEBELL Blue Ribbon Dark Ribbon Miss Olympia Bridesmaid Queen of Pinks	Light pink incurve	Nov. 1	60.00 + R
	Small bright lavender pink incurve	Nov. 1	52.00
	Deep pink incurved sport of Blue Ribbon	Nov. 1	64.00
	Bright med. pink feathered decorative	Nov. 1	74.00
	Large light lavender pink spider	Nov. 1	46.00
	Small pink incurve	Nov. 1	66.00

BGA — Breeder-Grower Agreement Varieties
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 † — Available Feb. 4, 1963
 * — Available June 1963



DISCOVERY



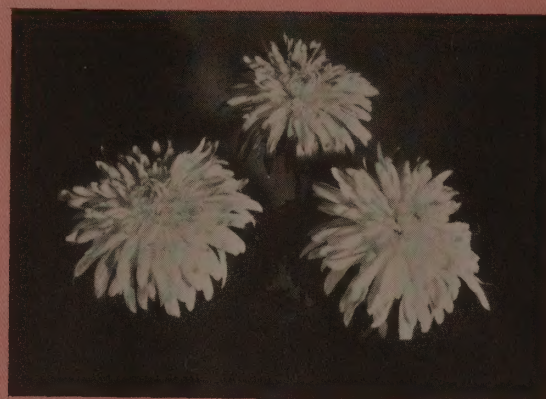
BRONZE BRIDESMAID

10 WEEK VARIETIES

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
WHITE			
Imp. Ind. White	Large white standard	Nov. 5	48.00
No. 3 Ind. White	Large white incurve	Nov. 5	48.00
BGA Snow Crystal	Medium ivory white spider	Nov. 5	46.00 + R
Oregon	Large white semi-incurve	Nov. 5	52.00
†SUSAN LEIGHTON	Ivory spider	Nov. 6	64.00
BGA Commander	Large white decorative	Nov. 8	60.00 + R
Whiterion	White sport of Criterion	Nov. 8	60.00
BGA Chalk Cliff	Large chalk white decorative	Nov. 10	56.00 + R
Pacesetter	Intermediate pure white single	Nov. 10	68.00
BGA White Deluxe	Clear white sport from Pink Deluxe	Nov. 10	60.00 + R
BGA Starburst	Pure white feathered decorative	Nov. 10	50.00 + R
BGA Ice Follies	Large chalk white decorative	Nov. 10	46.00 + R
Little America	Intermediate pure white anemone	Nov. 10	48.00
YELLOW			
Imp. Ind. Yellow	Light golden-yellow selection of Ind. Yellow	Nov. 5	46.00
Indianapolis Yellow	Large lemon yellow incurve	Nov. 5	48.00
Indianapolis Gold	Large golden yellow incurved standard	Nov. 5	50.00
Dark Ind. Yellow	Deep lemon yellow	Nov. 5	54.00
Yellow Oregon Trail	Deep lemon semi-incurve	Nov. 5	64.00
BGA Golden Crystal	Deep golden yellow sport from Snow Crystal	Nov. 5	50.00 + R
BGA Capricorn	Large decorative standard	Nov. 5	46.00 + R
†YELLOW STAR	Yellow sport of Red Star	Nov. 5	74.00
BGA Jackstraw	Large deep yellow feathered decorative	Nov. 5	50.00 + R
BGA Yellow Scepter	Deep clear yellow decorative	Nov. 5	52.00 + R
BGA Scepter	Large deep golden yellow decorative	Nov. 5	46.00 + R
†YELLOW LEIGHTON	Light yellow spider	Nov. 6	64.00
Yellow Delaware	Large golden yellow incurve	Nov. 8	48.00
Golden Yellow	Large sulfur yellow decorative standard	Nov. 10	52.00
Princess Anne			
Cream Yellow	Large cream yellow decorative standard	Nov. 10	52.00
Princess Anne			
BGA Yellow Deluxe	Bright clear lemon yellow	Nov. 10	60.00



COMMANDER



YELLOW SEPTER



JACKSTRAW



PRINCESS ANNE

10 WEEK VARIETIES (Continued)

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
BRONZE & RED			
Indianapolis Bronze	Large bronze incurve	Nov. 5	46.00
Dk. Ind. Bronze	Dark reddish bronze sport	Nov. 5	48.00
BGA Warhawk	Large bright red decorative	Nov. 5	50.00 + R
*BGA SPITFIRE	Intense red pompon	Nov. 5	60.00 + R
BGA Bronze Scepter	Bronze to yellow sport	Nov. 5	60.00 + R
Red Star	Large red to reddish bronze decorative	Nov. 5	50.00
Delaware	Large reddish bronze semi-incurved standard	Nov. 8	46.00
Incurved Delaware	Large reddish bronze tightly incurved standard	Nov. 8	64.00
Fujii Delaware	Large Fujii formed standard	Nov. 8	60.00
Apricot Princess Anne	Large decorative standard	Nov. 10	58.00
Golden Gate	Large golden bronze decorative standard	Nov. 10	54.00
Bronze Princess Anne	Large amber bronze decorative standard	Nov. 10	52.00
Flaxen Princess Anne	Clear amber bronze decorative	Nov. 10	74.00
Woking Scarlet	Large brilliant scarlet bronze decorative standard	Nov. 10	50.00
Copperhead	Large coppery bronze decorative	Nov. 10	54.00
#2 Red Humdinger	Color intensification on Red Humdinger	Nov. 11	56.00
Vulcan	Large crimson red decorative	Nov. 11	62.00
PINK			
Loubens	Large deep lavender pink incurved standard	Nov. 5	60.00
Indianapolis Pink	Large pink incurve	Nov. 5	46.00
BGA Mermaid	Intermediate lavender pink pompon	Nov. 5	46.00 + R
BGA Blushing Mermaid	Coral sport	Nov. 5	60.00 + R
Portrait	Large lavender pink pompon	Nov. 8	48.00
Pink Portrait	Light pink pompon sport of Portrait	Nov. 8	60.00
Profile	Large lively deep pink pompon	Nov. 8	64.00
Criterion	Large pink decorative	Nov. 8	50.00
BGA Caress	Large pink decorative	Nov. 10	54.00 + R
Princess Anne	Large salmon pink decorative standard	Nov. 10	50.00
BGA Frolic	Intermediate bright lavender pink pompon	Nov. 10	54.00 + R
Personality	Large luminous-pink incurved pompon	Nov. 10	60.00
Salmon Princess Anne	Light salmon pink	Nov. 10	64.00
Humdinger	Large luminous violet purple formal pompon	Nov. 10	52.00
BGA Pink Deluxe	Medium to large lavender pink disbud	Nov. 10	52.00 + R



WARHAWK



BLUSHING MERMAID



RED STAR



CARESS

11 WEEK VARIETIES

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
YELLOW			
BGA Splurge	Large rich amber yellow decorative	Nov. 15	60.00 + R
BGA Achievement	Very large lemon yellow incurve	Nov. 20	58.00 + R
Bonnaffon Deluxe	Intermediate deep lemon incurve	Nov. 20	54.00
BRONZE & RED			
Tan Vedova	Light bronze sport of Vedova	Nov. 15	60.00
Valentine	Large red decorative	Nov. 20	54.00
Calvert's Gold	Intermediate golden semi-incurve standard	Nov. 20	72.00
Clipper	Large bronze red incurve, light bronze reverse	Nov. 20	62.00
Bronze Venoya	Golden bronze anemone	Nov. 22	74.00
PINK			
BGA Charm	Intermediate bright pink anemone	Nov. 15	54.00 + R
BGA Blue Ridge	Huge pink decorative	Nov. 15	50.00 + R
Vedova	Extra large pastel lavender pink anemone	Nov. 15	56.00
Calvert's Pink	Intermediate orchid pink incurve	Nov. 17	74.00
CRISTAL (Pat.)	Pink incurve	Nov. 17	74.00
Venoya	Extra large lavender pink anemone	Nov. 22	58.00



BLUE RIDGE



CHARM

Prices quoted in this listing are based upon bookings 22 weeks in advance of shipping date.
Please refer to inside of front cover for complete pricing details.

BGA — Breeder-Grower Agreement Varieties

R — Royalty of 1.4¢ per cutting extra

† — Available Feb. 4, 1963

* Available June 1963

New Varieties added this year in Capital Letters

8 WEEK VARIETIES

PINCH JULY 16

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
WHITE			
White Pink Chief	Intermediate pure white incurve	Oct. 15	46.00
Silver Sheen	Intermediate white incurve	Oct. 20	48.00
#2 White Chief	White incurve	Oct. 20	60.00
YELLOW			
Harvest Golden	Large deep golden yellow decorative	Oct. 15	72.00
Mrs. Kidder	Large golden yellow incurve	Oct. 20	52.00
Butterball	Intermediate deep lemon incurve	Oct. 20	62.00
Blazing Gold	Intermediate golden yellow semi-incurve	Oct. 23	54.00
BRONZE & RED			
Amber Bright	Large golden bronze decorative	Oct. 15	54.00
Mayford Titan	Intermediate golden bronze	Oct. 24	74.00
PINK			
Pink Chief	Large lavender incurve	Oct. 15	52.00

9 WEEK VARIETIES

PINCH JULY 23

WHITE			
Marblehead	Medium clear white incurve	Oct. 25	52.00
Ambassador	Large ivory incurve	Oct. 25	54.00
Albatross	White incurve	Nov. 1	52.00
BGA Themesong	Medium ivory white semi-incurved disbud	Nov. 1	56.00 + R
YELLOW			
Yellow Marblehead	Medium lemon yellow incurve	Oct. 25	74.00
Golden Marblehead	Deep yellow sport from Marblehead	Oct. 25	74.00
Yellow Ambassador	Intermediate light lemon yellow incurve	Oct. 25	60.00
Mecca	Large deep lemon yellow incurve	Oct. 25	72.00
Sunglow	Large golden yellow incurve	Oct. 25	62.00
Yellow Albatross	Large lemon yellow sport from Albatross	Nov. 1	54.00
*#2 YELLOW ALBATROSS	Lemon yellow incurve	Nov. 1	64.00
Good News	Large deep yellow incurve	Nov. 1	54.00
*#2 GOOD NEWS	Improved Sport of News	Nov. 1	74.00
Golden Boy	Deep lemon yellow incurve	Nov. 1	52.00
BRONZE & RED			
Sundown	Orange bronze disbud	Oct. 25	74.00
Chambrier	Intense reddish bronze standard and disbud	Oct. 30	72.00
Symbol	Large amber bronze decorative	Nov. 1	74.00
Detroit News	Large reddish bronze incurve	Nov. 1	54.00
#2 Detroit News	Bright dark red incurve	Nov. 1	64.00
Fred Yule	Intermediate orange bronze incurve	Nov. 3	60.00



DETROIT NEWS vs. #2 DETROIT NEWS



CHAMBRIER

10 WEEK VARIETIES

PINCH JULY 30

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
WHITE			
Indianapolis White	Large white incurve	Nov. 5	48.00
Imp. Ind. White	Large white	Nov. 5	48.00
#3 Ind. White	Large white incurve	Nov. 5	48.00
Giant #4 Ind. White	Selected from #3 Ind. White	Nov. 5	54.00
Giant Betsy Ross	Large white incurve	Nov. 5	46.00
BGA Columbia	Large tightly incurved ivory white standard	Nov. 10	50.00 + R
Crystal Queen	Pure white sport from Orchid Queen	Nov. 10	64.00
Mefo	Large ivory incurve	Nov. 10	48.00
The Favourite	Large white incurve	Nov. 10	74.00
#2 Monument	Greatly improved selection from Monument	Nov. 10	64.00
Fred Shoemith	Large white incurve	Nov. 12	46.00
YELLOW			
Indianapolis Yellow	Large lemon yellow incurve	Nov. 5	48.00
Imp. Ind. Yellow	Light golden yellow selection of Ind. Yellow	Nov. 5	46.00
GIANT #4 IND. YELLOW	Matches #4 white	Nov. 5	62.00
Indianapolis Gold	Large golden yellow incurve	Nov. 5	50.00
Dk. Ind. Yellow	Deep lemon yellow	Nov. 5	54.00
BGA Explorer	Large deep yellow incurve	Nov. 5	46.00 + R
Yellow Betsy Ross	Intermediate lemon yellow incurve	Nov. 5	58.00
BGA Everest	Large yellow incurve	Nov. 8	54.00 + R
BGA Jonquil	Lemon yellow incurve	Nov. 9	60.00 + R
Cream Yellow	Large cream yellow decorative	Nov. 10	52.00
Princess Anne			
Golden Yellow	Large sulfur yellow decorative	Nov. 10	52.00
Princess Anne			
Yellow Queen	Large light lemon semi-incurve	Nov. 10	74.00
#2 Yellow Queen	Deep lemon yellow sport of Yellow Queen	Nov. 10	74.00
Yellow Mefo	Large deep lemon incurve	Nov. 10	46.00
Imp. Yellow Mefo	Lemon yellow incurve	Nov. 10	56.00
Cream Mefo	Cream yellow sport from Mefo	Nov. 10	54.00
#2 Yellow Monument	Improved selection from Yellow Monument	Nov. 10	74.00
Golden Shoemith	Large intensified yellow incurved	Nov. 12	56.00
Yellow Shoemith	Large yellow incurve	Nov. 12	48.00
#2 Yellow Shoemith	Jumbo yellow sport	Nov. 12	58.00
BGA Rainier	Large intense golden yellow solid incurve	Nov. 14	50.00 + R



JONQUIL



EVEREST

IMP. IND. YELLOW vs.
GIANT #4 IND. INDIANAPOLIS YELLOW

10 WEEK VARIETIES (Continued)

PINCH JULY 30

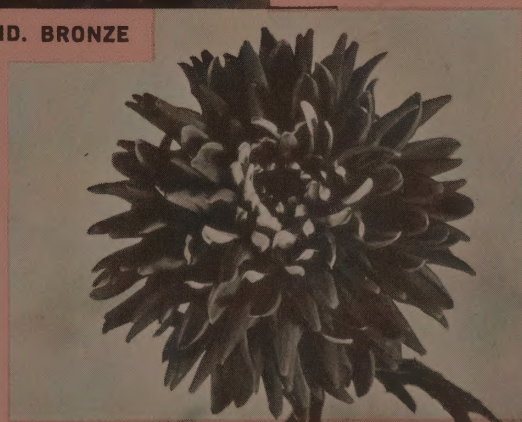
VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
BRONZE & RED			
BGA Blaze	Larger, deeper colored version of Woking	Nov. 5	60.00 + R
Indianapolis Bronze	Large bronze incurve	Nov. 5	46.00
#2 Indianapolis Bronze	Copper bronze sport	Nov. 5	64.00
Indianapolis Apricot	Intermediate warm apricot bronze incurve	Nov. 5	62.00
Dk. Ind. Bronze	Dark reddish bronze sport	Nov. 5	48.00
Anaconda	Large red bronze incurve	Nov. 8	56.00
Woking Scarlet	Large brilliant bronze decorative disbud	Nov. 10	50.00
Golden Gate	Large golden bronze decorative disbud	Nov. 10	54.00
Apricot Princess Anne	Apricot bronze decorative	Nov. 10	58.00
Bronze Princess Anne	Large amber bronze sport of Princess Anne	Nov. 10	52.00
Flaxen Princess Anne	Golden bronze decorative	Nov. 10	74.00
Br. Orchid Queen	Buff coral bronze sport	Nov. 10	74.00
Copper Queen	Large copper bronze incurve	Nov. 10	62.00
Mrs. Roy	Large red incurve with copper reverse	Nov. 13	58.00
Garnet King	Intermediate deep crimson red reflex	Nov. 13	60.00
BGA Regency	Large golden bronze incurve	Nov. 14	60.00 + R
PINK			
BGA Miss America	Semi-incurved standard	Nov. 5	46.00 + R
Indianapolis Pink	Large pink incurve	Nov. 5	46.00
BGA Vanguard	Intermediate bright lavender pink incurve	Nov. 5	50.00 + R
BGA Bluebird	Large pink decorative disbud	Nov. 5	58.00 + R
BGA Elite	Medium sized pink semi-incurve	Nov. 6	60.00 + R
Princess Anne	Large salmon pink decorative disbud	Nov. 10	50.00
Salmon Princess Anne	Salmon pink decorative	Nov. 10	64.00
Rosamund	Medium rose pink with coral overtone disbud	Nov. 10	58.00
Orchid Queen	Large light orchid pink semi-incurve	Nov. 10	68.00
Lavender Queen	Lavender sport of Orchid Queen	Nov. 10	66.00
Dk. Orchid Queen	Large deep lavender semi-incurved standard	Nov. 10	62.00
#2 Dark Queen	Dark pink reselection of Dark Orchid Queen	Nov. 10	74.00
Laughter	Intermediate light lavender pink decorative	Nov. 10	58.00
Pink F. Shoesmith	Light pink sport from Fred Shoesmith	Nov. 12	56.00
BGA Pink Champagne	Semi-incurved pink	Nov. 12	60.00 + R
BGA Tradewind	Large bright shell pink semi-incurve	Nov. 13	60.00 + R



IND. BRONZE vs. #2 IND. BRONZE



PINK CHAMPAGNE



BLAZE

11 WEEK VARIETIES

PINCH AUGUST 6

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
WHITE			
Kentucky White	White sport of Kentucky	Nov. 15	74.00
Sterling	Large pure white incurve	Nov. 15	60.00
Marketeer	Intermediate chalk white incurve	Nov. 18	54.00
YELLOW			
Golden Balcombe	Golden yellow Balcombe sport	Nov. 18	64.00
Perfection			
Friendly Rival	Intermediate intense golden yellow incurve	Nov. 20	56.00
Harvester	Intermediate deep lemon yellow incurve	Nov. 23	56.00
Marie DePetris	Intermediate deep yellow incurve	Nov. 23	62.00
BRONZE & RED			
Kentucky Bronze	Bronze sport from Indianapolis Pink	Nov. 15	70.00
Balcombe Perfection	Intermediate copper bronze incurve	Nov. 18	64.00
Red Balcombe	Bright red sport, copper bronze reverse	Nov. 18	62.00
Perfection			
Calvert's Gold	Intermediate golden bronze semi-incurve	Nov. 20	72.00
Valentine	Large red disbud decorative	Nov. 20	54.00
PINK			
Kentucky Pink	Taller, larger, later sport from Ind. Pink	Nov. 15	68.00
Calvert's Pink	Intermediate orchid pink incurve	Nov. 17	74.00
Helen Frick	Intermediate light lavender incurve	Nov. 20	62.00
Thanksgiving Pink	Intermediate orchid pink decorative	Nov. 23	58.00



OAK LEAF vs. #2 OAK LEAF



ROYAL



KENTUCKY BRONZE

12 WEEK VARIETIES

PINCH AUGUST 13

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
WHITE			
Imp. White Peter John	Selection from White Peter John	Nov. 25	68.00
Chattanooga	Large pure white incurve	Nov. 25	50.00
December Glory	Intermediate white incurve	Dec. 1	68.00
Margaret Moeller	Intermediate white incurve	Dec. 3	60.00
YELLOW			
Yellow Peter John	Large light lemon yellow decorative	Nov. 25	74.00
Dk. Yel. Chattanooga	Deep lemon yellow sport	Nov. 25	54.00
Yellow Chattanooga	Large light lemon incurve	Nov. 25	54.00
Golden Pearson	Intermediate light lemon incurve	Nov. 25	58.00
#2 Yellow Glory	Will replace the original Yellow Glory	Dec. 1	74.00
#3 Yellow Glory	Dark yellow selection of Yellow Glory	Dec. 1	74.00
Golden Mrs. Ross	Large deep lemon incurve	Dec. 3	56.00
BRONZE & RED			
Imp. Br. Peter John	Selection from Bronze Peter John	Nov. 25	62.00
Gladys Pearson	Intermediate light copper bronze incurve	Nov. 25	62.00
Oak Leaf	Intermediate copper incurve	Nov. 25	52.00
#2 Oak Leaf	Tightly incurved sport from Oak Leaf	Nov. 25	60.00
Muto's Crimson	Intermediate deep crimson incurve	Dec. 1	74.00
BGA Ruby	Deep, intensified salmon disbud	Dec. 10	60.00 + R
Shoesmith Salmon			
BGA Bronze	Close to Bronzechip disbud	Dec. 10	60.00 + R
Shoesmith Salmon			
BGA Apricot	Resembling Copperchip disbud	Dec. 10	60.00 + R
Shoesmith Salmon			
PINK			
BGA Royal	Medium to large deep pink decorative	Nov. 25	60.00 + R
Pink Peter John	Large light orchid pink decorative	Nov. 25	58.00
BGA Shoesmith Salmon	Salmon decorative	Dec. 1	60.00 + R

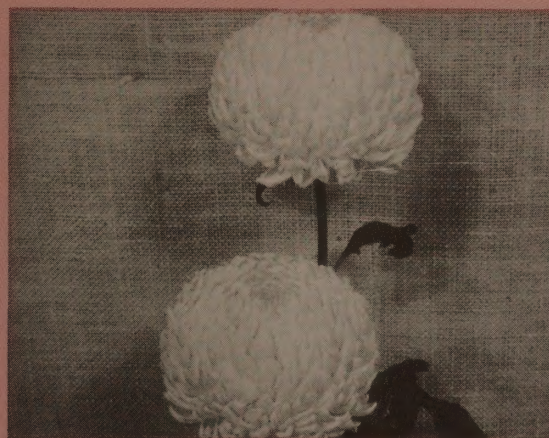
13 WEEK VARIETIES

PINCH AUGUST 20

WHITE			
Smith's White	Intermediate white semi-incurve	Dec. 10	56.00
December White	Intermediate white incurve	Dec. 15	54.00
Snowline	Large showy white flower	Dec. 20	60.00
YELLOW			
Tobin's Yellow	Intermediate deep lemon semi-incurve	Dec. 10	58.00
Smith's Yellow	Lemon yellow sport from Smith's White	Dec. 10	66.00
Meteore	Intermediate deep lemon semi-incurve	Dec. 13	60.00



SHOESMITH SALMON



#3 YELLOW GLORY

9 WEEK VARIETIES

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
WHITE			
SILVER STRAND	White spider	Oct. 25	64.00
Donlope's White Spider	Large ivory white spider	Nov. 1	50.00
† #2 DONLOPE'S WHITE SPIDER	White spider	Nov. 1	68.00
Queen's Lace	Large white spider	Nov. 1	48.00
YELLOW			
Luyona	Lemon yellow spider	Oct. 25	46.00
Gold Lace	Golden yellow sport	Nov. 1	48.00
BRONZE & RED			
Duchess	Medium to large bronze spider	Nov. 1	58.00
PINK			
Bunbu	Large lavender pink spider	Nov. 1	48.00

10 WEEK VARIETIES

WHITE			
White Rayonnante	White spider, straight tube	Nov. 5	74.00
Tokyo	Large white spider	Nov. 10	60.00
YELLOW			
Nightingale	Chartreuse green spider	Nov. 5	60.00
Yellow Nightingale	Yellow sport from Nightingale	Nov. 5	74.00
Imp. Yellow	Clear yellow spider	Nov. 5	74.00
Rayonnante	Deep yellow spider	Nov. 8	62.00
Yellow Knight			
BRONZE & RED			
Gena Harwood	A bronze Rayonnante	Nov. 5	74.00
Nomago	Light bronze spider	Nov. 5	62.00
Waikiki	Red bronze spider	Nov. 13	68.00
Maple Leaves	Light bronze spider	Nov. 13	58.00
PINK			
Rayonnante	Pink tube spider	Nov. 5	
#2 Rayonnante	A larger and improved sport	Nov. 5	74.00
Plum	Large silvery lavender duplex	Nov. 10	74.00

11 WEEK VARIETIES

WHITE			
John Baumann	Large paper white duplex form spider	Nov. 20	60.00



#2 DONLOPE'S WHITE SPIDER



SILVER STRAND

7 WEEK VARIETIES

PINCH JULY 9

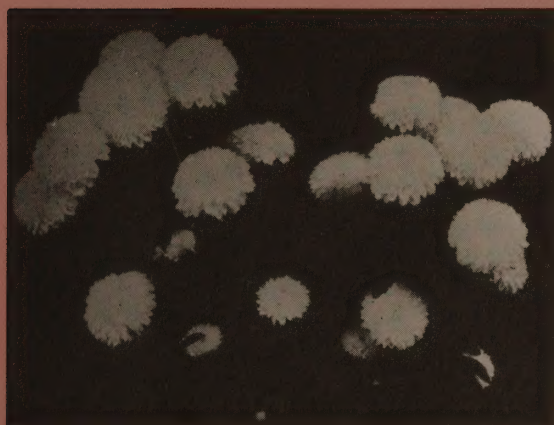
VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
WHITE			
Candleglow Horizon	White pompon	Oct. 1	64.00
	Intermediate white pompon	Oct. 5	52.00
YELLOW			
Polaris Bright Forecast	Early golden buff daisy	Oct. 5	60.00
	Very formal yellow pompon	Oct. 10	66.00
BRONZE & RED			
Huntsman Carnival	Red bronze decorative	Oct. 5	54.00
	Large glowing orange pompon	Oct. 10	70.00

8 WEEK VARIETIES

PINCH JULY 16

WHITE			
BGA Echo Blizzard Pristine	Intermediate paper-white formal pompon	Oct. 15	52.00 + R
	Small white formal pompon	Oct. 15	56.00
	Intermediate pure white pompon	Oct. 20	62.00
YELLOW			
Yellow Calumet BGA Topflight	Lemon yellow sport of Calumet	Oct. 15	60.00
	Medium to small bright yellow anemone	Oct. 20	58.00 + R
BRONZE & RED			
Calumet Dark Calumet	Apricot bronze pompon	Oct. 15	62.00
	Dark bronze sport of Calumet	Oct. 15	66.00
PINK			
Enterprise Accolade Mirth	Intermediate deep pink pompon	Oct. 15	66.00
	Intermediate carnation pink decorative	Oct. 15	62.00
	Intermediate pink single	Oct. 20	74.00

Prices quoted in this listing are based upon bookings 22 weeks in advance of shipping date. Please refer to inside of front cover for complete pricing details.



ECHO



TOP FLIGHT

9 WEEK VARIETIES

PINCH JULY 23

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
WHITE			
Silvertone	Intermediate white daisy	Oct. 25	54.00
Silver Bow	Large formal pompon	Oct. 25	60.00
BGA Cloudbank	Intermediate pure white anemone	Oct. 25	50.00 + R
Popcorn	Intermediate white pompon	Oct. 25	60.00
White Popcorn	White sport of Popcorn	Oct. 25	48.00
Keepsake	White pompon	Oct. 25	56.00
White Keepsake	Intermediate white pompon	Oct. 25	52.00
Pinocchio	Small pure white button pompon	Oct. 25	46.00
BGA Alabaster	Intermediate pure white daisy	Oct. 25	54.00 + R
Songster	Intermediate white pompon	Oct. 25	74.00
Memento	Intermediate chalk white single	Oct. 30	52.00
Halo	White daisy	Nov. 1	74.00
Whitechip	White sport from Bluechip	Nov. 1	58.00
#2 Whitechip	Intermediate white decorative	Nov. 1	64.00
+BGA THUNDERBOLT	Crested anemone	Nov. 1	60.00 + R
Sea Gull	Intermediate ivory pompon	Nov. 1	56.00
Alaska	Intermediate white anemone	Nov. 1	48.00
White Doty	Large white pompon	Nov. 1	56.00
Thistledown	Medium to small clear white decorative pompon	Nov. 1	56.00
YELLOW			
Yellow Bow	Yellow pompon	Oct. 25	74.00
Yellow Keepsake	Rich yellow sport of Keepsake	Oct. 25	58.00
Golden Herald	Large yellow decorative	Oct. 25	54.00
Gold Coast	Intermediate deep lemon formal pompon	Oct. 25	46.00
Happiness	Large golden yellow single	Oct. 28	58.00
BGA Sunbeam	Intermediate to large golden yellow daisy	Oct. 30	50.00 + R
Sauterne	Intermediate intense yellow single	Oct. 30	54.00
BGA Flair	Intense yellow daisy	Nov. 1	52.00 + R
#2 Dandy	Golden yellow pompon	Nov. 1	62.00
Statesman	Small intense yellow pompon	Nov. 1	50.00
BGA Brilliancy	Intermediate Aztec yellow single	Nov. 1	60.00 + R
Yellowchip	Bright lemon yellow sport of Bluechip	Nov. 1	52.00



FLAIR



CLOUD BANK



SUNBEAM

9 WEEK VARIETIES (Continued)

PINCH JULY 23

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
BRONZE & RED			
Gaiety	Intermediate Talisman bronze single	Oct. 25	52.00
Bronze Dot	Small two tone bronze pompon	Oct. 25	50.00
Sally	Small intense bronze pompon	Oct. 25	64.00
Buckskin	Tawny bronze daisy	Oct. 25	48.00
Sybil	Intermediate golden apricot daisy	Oct. 30	56.00
Bronzechip	Intermediate orange bronze decorative	Nov. 1	50.00
Copperchip	Bright amber bronze sport from Bronzechip	Nov. 1	54.00
BGA Tanfastic	Intermediate deep bronze pompon	Nov. 1	50.00 + R
Buccaneer	Rich orange bronze daisy	Nov. 1	50.00
PINK			
Pinkette	Small dark pompon	Oct. 25	56.00
BGA Ambrosia	Large bright coral pink decorative	Oct. 25	60.00 + R
BGA PINK MARBLE	Light pink daisy	Oct. 25	60.00 + R
Reward	Productive deep pink single	Oct. 25	52.00
Pink Dot	Small pink pompon	Oct. 25	50.00
Pearl Chip	Luminous shell pink or apple blossom sport	Nov. 1	58.00
Bluechip	Intermediate luminous pink decorative	Nov. 1	48.00
Pinkchip	Intermediate light pink decorative	Nov. 1	52.00
Peach Chip	Intermediate bright peach pink decorative	Nov. 1	54.00
Darkchip	Intermediate dark lavender pink decorative	Nov. 1	50.00
Cherrychip	Intermediate rose pink decorative	Nov. 1	56.00
Lillian Doty	Large light pink pompon	Nov. 1	54.00
Tempo	Intermediate deep pink decorative	Nov. 3	74.00



CHERRY CHIP



ALABASTER



TANFASTIC

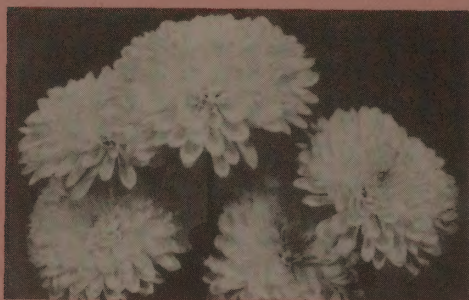


AMBROSIA

10 WEEK VARIETIES

PINCH JULY 30

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
WHITE			
BGA Sovereign	Intermediate white anemone	Nov. 5	60.00 + R
BGA Hurricane	Intermediate white decorative pompon	Nov. 5	50.00 + R
BGA Ping Pong	Small clear white formal pompon	Nov. 5	50.00 + R
Bonnie Jean	Intermediate white daisy, green eyed	Nov. 5	74.00
Supertop	White decorative sport of Whitetop	Nov. 5	50.00
Whitetop	Intermediate chalk white decorative	Nov. 5	50.00
Feathertop	Deeply feathered sport of Whitetop	Nov. 5	70.00
Supreme Whitetop	Large white decorative	Nov. 5	70.00
Iceberg	Large white pompon	Nov. 5	48.00
Encore	Intermediate white pompon	Nov. 5	58.00
BGA Snow Crystal	Medium ivory white spider	Nov. 5	46.00 + R
Whiterion	White sport of Criterion	Nov. 8	60.00
†BGA CYCLONE	Pure white pompon	Nov. 8	60.00 + R
BGA Cloudburst	Large, white decorative pompon	Nov. 10	60.00 + R
BGA Milady	Large pure white anemone	Nov. 10	60.00 + R
BGA Chalk Cliff	Large chalk white decorative	Nov. 10	56.00 + R
BGA Dawn Star	Intermediate pure white pompon	Nov. 10	46.00 + R
BGA Coronado	Clear white daisy	Nov. 10	54.00 + R
Pacesetter	Intermediate pure white single	Nov. 10	68.00
Illini Igloo	Intermediate ivory white pompon	Nov. 10	50.00
BGA Viscount	Large white semi-anemone	Nov. 10	54.00 + R
Shasta	Large white anemone	Nov. 10	46.00
#2 Shasta	Improved sport of Shasta	Nov. 10	54.00
BGA Starburst	Feathered decorative	Nov. 10	50.00 + R
Little America	Intermediate pure white anemone	Nov. 10	48.00
BGA Skyline	Large ivory white formal pompon	Nov. 12	60.00 + R
BGA Stardust	Intermediate white formal pompon	Nov. 12	56.00 + R
Illini Snowdrift	Intermediate white feathered decorative	Nov. 12	46.00
†BGA WHITE SANDS	White anemone	Nov. 12	60.00 + R
YELLOW			
BGA Imperial	Deep golden yellow intermediate pompon	Nov. 5	50.00 + R
Goldtop	Intermediate deep lemon yellow pompon	Nov. 5	56.00
Yellowtop	Lemon yellow sport from Whitetop	Nov. 5	54.00
Yellow Bonnie Jean	Intermediate yellow daisy, green eyed	Nov. 5	74.00
BGA Jackstraw	Feathered decorative	Nov. 5	50.00 + R
Crescendo	Large yellow pompon	Nov. 5	64.00
BGA Golden Bantam	Small deep golden yellow pompon	Nov. 5	52.00 + R
Yellow Beauregard	Intermediate clear golden yellow pompon	Nov. 5	48.00
Yellow Iceberg	Clear lemon yellow sport from Iceberg	Nov. 5	48.00
#2 Yellow Iceberg	Deep yellow sport from Yellow Iceberg	Nov. 5	48.00
LIGHT YELLOW			
ICEBERG			
Goldberg	Light yellow	Nov. 5	74.00
BGA Sunfire	Large golden yellow pompon	Nov. 5	58.00
BGA Golden Crystal	Medium to large dark yellow single	Nov. 5	60.00 + R
Luxury	Deep golden sport from Snow Crystal	Nov. 5	50.00 + R
Yellow Shasta	Large clear yellow decorative	Nov. 8	48.00
Golden Shasta	Large light lemon yellow anemone	Nov. 10	46.00
Jealousy	Large deep yellow anemone	Nov. 10	52.00
BGA Yellow Viscount	Small intense yellow pompon	Nov. 10	58.00
Yellow Igloo	Deep yellow anemone	Nov. 10	58.00 + R
Heydey	Intermediate deep lemon yellow pompon	Nov. 10	48.00
†BGA TOPAZ	Intermediate bright yellow pompon	Nov. 10	48.00
BGA Golden Stardust	Small button pompon	Nov. 12	60.00 + R
BGA Yellow Stardust	Golden yellow sport from Stardust	Nov. 12	60.00 + R
*BGA YELLOW	Bright lemon yellow sport from Stardust	Nov. 12	60.00 + R
SKYLINE			
Yellow Ill. Snowdrift	Large deep yellow	Nov. 12	60.00 + R
BGA Fanfare	Small yellow novelty decorative	Nov. 12	64.00
	Intermediate golden yellow anemone	Nov. 14	60.00 + R



SKYLINE



YELLOW VISCOUNT

10 WEEK VARIETIES (Continued)

PINCH JULY 30

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
BRONZE & RED			
BGA Tuneful	Intermediate intense orange bronze daisy	Nov. 5	50.00 + R
Jetfire	Intermediate flaming red decorative	Nov. 5	52.00
Red Jetfire	Intense red sport from Jetfire	Nov. 5	54.00
Bronze Delight	Intermediate brick-red bronze daisy	Nov. 5	58.00
Orange Beauregard	Light orange sport from Beauregard	Nov. 5	52.00
Beauregard	Reddish orange pompon	Nov. 5	46.00
Dark Beauregard	Intermediate mahogany bronze pompon	Nov. 5	50.00
Dillon Beauregard	Intermediate intense reddish bronze pom	Nov. 5	48.00
Rubicon	Intermediate red bronze decorative	Nov. 5	58.00
BGA Daybreak	Orange anemone	Nov. 10	60.00 + R
BGA Wizard	Intermediate orange bronze pompon	Nov. 10	52.00 + R
Climax	Intermediate intense orange pompon	Nov. 10	58.00
Red Climax	Reddish bronze sport from Climax	Nov. 10	74.00
Copperhead	Large coppery bronze decorative	Nov. 10	54.00
BGA Giltglow	Intermediate bi-colored single	Nov. 10	50.00 + R
#2 Red Humdinger	Color intensification on Red Humdinger	Nov. 11	56.00
Bronze Masterpiece	Intermediate bronze pompon	Nov. 12	62.00
BGA BRONZE CHEERFUL	Bronze pompon	Nov. 12	60.00 + R
PINK			
Parisienne	Intermediate shell pink decorative	Nov. 5	52.00
Delight	Intermediate pink duplex daisy	Nov. 5	50.00
BGA Valiant	Intermediate bright pink pompon	Nov. 5	50.00 + R
BGA Overture	Large luminous pink pompon	Nov. 5	50.00 + R
BGA Bluebird	Large pink decorative disbud	Nov. 5	58.00
Portrait	Large lavender pink pompon	Nov. 8	48.00
Pink Portrait	Light pink sport from Portrait	Nov. 8	60.00
Profile	Large lively deep pink pompon	Nov. 8	64.00
Criterion	Large pink decorative	Nov. 8	50.00
Bonnie	Intermediate pink pompon	Nov. 10	72.00
Pennant	Intermediate deep pink pompon	Nov. 10	54.00
#2 Pennant	A larger and improved Pennant	Nov. 10	64.00
Pandora	Large luminous pink decorative	Nov. 10	60.00
Scintillation	Intermediate deep pink pompon	Nov. 10	60.00
Humdinger	Large violet purple formal pompon	Nov. 10	52.00
BGA Excello	Intermediate pink daisy	Nov. 10	50.00 + R
Masterpiece	Intermediate lavender pink pompon	Nov. 12	58.00
Rose Masterpiece	Intermediate light lavender pink pompon	Nov. 12	72.00
BGA Cheerful	Intermediate lavender pink pompon	Nov. 12	54.00 + R
BGA BRIGTN CHEERFUL	Deep pink pompon	Nov. 12	60.00 + R



BONNIE JEAN



CORONADO

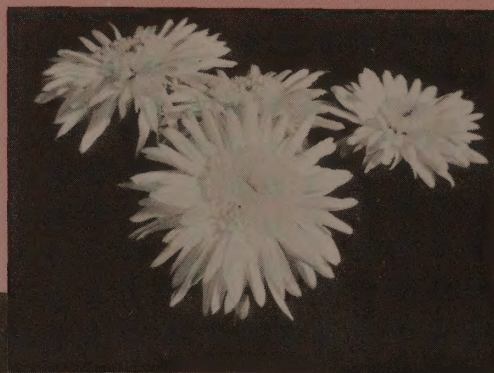


BRONZE CHEERFUL

11 WEEK VARIETIES

PINCH AUGUST 6

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
WHITE			
White Taffeta	Pure white sport of Taffeta	Nov. 15	50.00
BGA Bride	Small white anemone, pure white cushion	Nov. 15	60.00 + R
BGA Lightning	Very large white pompon	Nov. 15	60.00 + R
Sculpture	Large ivory white daisy	Nov. 15	66.00
Illini Starflower	Large white semi-anemone spoon	Nov. 18	74.00
BGA Jupiter	Large pure white decorative	Nov. 20	54.00 + R
Long Island Beauty	Large white anemone, yellow cushion	Nov. 20	50.00
BGA Divinity	Pure white intermediate anemone	Nov. 20	58.00 + R
Highbrow	Ivory white decorative	Nov. 20	54.00
BGA Ermine	Large white pom cream eye center	Nov. 20	60.00 + R
Nevada	Intermediate white anemone	Nov. 20	72.00
Priscilla	Intermediate clear white pompon	Nov. 20	56.00
BGA Surfside	Large clear white single	Nov. 23	52.00 + R
Paramount	Intermediate ivory white pompon	Nov. 23	74.00
Belray	Large white pompon	Nov. 24	62.00
Carrara	Intermediate pure white decorative	Nov. 24	74.00
YELLOW			
BGA Highball	Intermediate deep yellow pompon	Nov. 15	60.00 + R
BGA Old Gold	Deep golden yellow intermediate decorative	Nov. 15	60.00 + R
BGA Etude	Large rich yellow semi-formal pompon	Nov. 15	56.00 + R
BGA Yellow Etude	Bright yellow selection	Nov. 15	60.00 + R
Yellow Taffeta	Intermediate lemon yellow sport from Taffeta	Nov. 15	60.00
Golden Chord	Intermediate intense golden yellow pompon	Nov. 15	52.00
Forty-Niner	Intermediate brilliant golden yellow pompon	Nov. 15	58.00
Souvenir	Intermediate dark yellow daisy	Nov. 15	54.00
Esquire	Intermediate deep yellow decorative	Nov. 15	74.00
BGA Starflite	Intermediate yellow anemone	Nov. 15	60.00 + R
Gold Ball	Intermediate golden yellow pompon	Nov. 15	60.00
BGA Shane	Intermediate to large golden yellow anemone	Nov. 15	48.00 + R
Illini Goldrift	Intermediate golden feathered decorative	Nov. 18	60.00
Yellow L. I. Beauty	Large lemon anemone	Nov. 20	54.00
Yellow Highbrow	Intermediate golden yellow pompon	Nov. 20	74.00
Lollipop	Lemon yellow formal pompon	Nov. 20	54.00
Pippin	Intermediate yellow pompon	Nov. 20	56.00
Klondike	Orange yellow pompon	Nov. 20	66.00
Illini Sunspot	Large yellow formal pompon	Nov. 20	74.00
Sultan	Large amber yellow formal decorative	Nov. 23	70.00
Golden Paramount	Intermediate intense golden formal pompon	Nov. 23	74.00



STARFLITE



BRIDE



HIGHBALL

11 WEEK VARIETIES (Continued)

PINCH AUGUST 6

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
BRONZE & RED			
Beauregard Supreme	Sport selection from Beauregard	Nov. 15	54.00
Bronze Jubilation	Large rosewood bronze sport of Jubilation	Nov. 15	74.00
Thelma	Brilliant orange scarlet pompon	Nov. 15	50.00
Ranger	Intermediate true orange pompon	Nov. 15	62.00
Tan Vedova	Light bronze sport of Vedova	Nov. 15	60.00
Valentine	Large red decorative	Nov. 20	54.00
BGA Rebel	Intense red daisy	Nov. 20	60.00 + R
Legal Tender	Intermediate bronze decorative	Nov. 20	58.00
BGA Cardinal	Intermediate intense crimson red pompon	Nov. 20	60.00 + R
BGA Bronze Staccato	Reddish sport of Staccato	Nov. 20	60.00 + R
Rusticon	Intermediate rust red pompon	Nov. 20	64.00
Ambercon	Intermediate warm amber bronze pompon	Nov. 20	68.00
Olnura	Large apricot buff anemone	Nov. 22	74.00
Bronze Venoya	Amber bronze sport of Venoya	Nov. 22	74.00
PINK			
BGA Flamenco	Large Humdinger pink	Nov. 15	60.00 + R
Taffeta	Two tone pink pompon	Nov. 15	56.00
Jubilation	Large Masterpiece pink pompon	Nov. 15	56.00
Pink Jubilation	Smooth, glistening light pink sport	Nov. 15	74.00
Illini Springtime	Intermediate pink single	Nov. 15	60.00
Vedova	Extra large Valencia sized anemone	Nov. 15	56.00
BGA Staccato	Intermediate lavender pink formal pompon	Nov. 20	58.00 + R
BGA Delmarvel	Intermediate pink pompon	Nov. 20	58.00 + R
BGA Signet	Intermediate pink anemone	Nov. 20	60.00 + R
Almega	Large silvery pink pompon	Nov. 20	60.00
Venoya	Extra large lavender pink anemone	Nov. 22	58.00
BGA Blue Skies	Large Portrait pink pompon	Nov. 23	60.00 + R
BGA Celebrity	Intermediate shell pink decorative	Nov. 23	60.00 + R



BRONZE VENOYA



REBEL



BRONZE STACCATO



SIGNET

12 WEEK VARIETIES

PINCH AUGUST 13

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
WHITE			
Silvercrest	Small white formal pompon	Nov. 25	66.00
White Valencia	Large white single	Nov. 28	58.00
Fortune	Formal white pompon	Dec. 1	64.00
Illini Glacier	Medium clear white anemone	Dec. 1	68.00
YELLOW			
BGA Borealis	Intermediate deep yellow decorative	Nov. 25	60.00 + R
Goldsmith	Large golden yellow decorative	Nov. 25	60.00
Highlander	Intermediate intense yellow decorative	Nov. 25	70.00
Sunnyside	Intermediate deep lemon pompon	Nov. 25	50.00
Illini Wampum	Yellow anemone, greenish yellow cushion	Nov. 25	66.00
Yellow Valencia	Large yellow single	Nov. 28	58.00
Omega	Intermediate deep lemon pompon	Dec. 1	52.00
Yellow Galaxy	Deep lemon yellow sport of Galaxy	Dec. 1	50.00
BRONZE & RED			
Rubaiyat	Intense red pompon	Nov. 23	56.00
BGA Dragon	Bright red intermediate pompon	Nov. 25	60.00 + R
Illini Redwood	Intermediate red pompon	Nov. 25	70.00
Bronze Goldsmith	Large amber bronze decorative	Nov. 25	64.00
Apricot Valencia	Large apricot bronze single	Nov. 28	60.00
Galaxy	Intermediate bright orange single	Dec. 1	52.00
Red Galaxy	Intermediate scarlet red single	Dec. 1	66.00
Crackerjack	Intermediate warm reddish bronze daisy	Dec. 1	60.00
BGA Bronze Prom	Copper bronze sport of Prom	Dec. 1	60.00 + R
PINK			
BGA Hi-Fi	Intermediate Portrait pink pompon	Nov. 25	50.00 + R
BGA Legend	Intermediate lavender pink formal pompon	Nov. 25	52.00 + R
Delmar	Intermediate light lavender pink pompon	Nov. 25	46.00
Beautiful Lady	Large pink anemone	Nov. 25	68.00
BGA Splendor	Large luminous shell pink decorative pompon	Nov. 25	60.00 + R
BGA Royal	Medium to large deep pink decorative	Nov. 25	60.00 + R
Valencia	Large light lavender pink single	Nov. 28	60.00
Dark Valencia	Large lavender pink single	Nov. 28	66.00
BGA Prom	Intermediate intensified Delmar pink pompon	Dec. 1	60.00 + R



BRONZE PROM



DRAGON



LEGEND

13 WEEK VARIETIES

PINCH AUGUST 20

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
WHITE			
Icecap	Intermediate chalk white pompon	Dec. 5	46.00
White Enchantress	Large white disspray anemone	Dec. 5	66.00
Acclaim	Large ivory white formal type pompon	Dec. 5	58.00
BGA Snowstorm	Medium white decorative pompon	Dec. 5	56.00 + R
Illini Alba	Intermediate chalk white daisy	Dec. 5	58.00
White Snowdrop	Pure white sport of Snowdrop	Dec. 8	68.00
BGA Iceflo	Intermediate white pompon	Dec. 10	50.00 + R
Illini Starlet	Intermediate white anemone	Dec. 10	70.00
White Minstrel	White sport of Minstrel	Dec. 13	74.00
Satellite	Intermediate cream white pompon	Dec. 13	74.00
Snowcrest	Small white button pompon	Dec. 13	58.00
YELLOW			
BGA Kingpin	Intermediate deep yellow, formal pompon	Dec. 5	54.00
Coronation	Intermediate to large intense yellow decorative	Dec. 5	52.00
Golden Acclaim	Intermediate golden yellow selection	Dec. 5	58.00
Yellow Enchantress	Large bright golden buff disspray anemone	Dec. 5	66.00
BGA Spungold	Intermediate deep lemon yellow single	Dec. 8	60.00 + R
*BGA GOLDFLO	Yellow pompon	Dec. 10	60.00 + R
Corsair	Large yellow pompon	Dec. 12	50.00
BRONZE & RED			
BGA Beau Brummell	Bright bronze pompon	Dec. 5	60.00 + R
Debonair	Large red pompon	Dec. 5	66.00
Christmas Star	Intermediate red single	Dec. 12	66.00
Dk. Br. Minstrel	Reddish bronze sport of Bronze Minstrel	Dec. 13	74.00
Red Minstrel	Crimson red sport of Bronze Minstrel	Dec. 13	68.00
PINK			
Enchantress	Large lavender pink disspray anemone	Dec. 5	58.00
Debutante	Intermediate pink single	Dec. 10	52.00
Minstrel	Intermediate lavender pink pompon	Dec. 13	58.00
Dk. Pk. Minstrel	Clear deep mulberry shade of Minstrel	Dec. 13	70.00
Imp. Pink Minstrel	Intermediate pink formal pompon	Dec. 13	74.00
BGA Blue Moon	Large pink pompon	Dec. 14	60.00 + R



BLUE MOON



SPUNGOLD



KING PIN

14 WEEK VARIETIES

PINCH AUGUST 27

VARIETY	DESCRIPTION	Natural Flowering Date	Price per 1000
WHITE			
BGA Icebreaker	White decorative	Dec. 15	60.00 + R
Trenton	Intermediate white pompon	Dec. 15	60.00
Silversmith	Intermediate pure white decorative	Dec. 15	50.00
Snowcap	Large white formal pompon	Dec. 15	56.00
Garza	Intermediate white anemone	Dec. 15	60.00
Elegance	Intermediate white decorative	Dec. 20	54.00
Wedding Bells	Small to medium white formal pompon	Dec. 20	66.00
YELLOW			
Illini Brighteyes	Intermediate lemon yellow anemone	Dec. 15	60.00
Yellow Garza	Intermediate lemon yellow anemone	Dec. 15	60.00
Shamrock	Large yellow decorative	Dec. 15	62.00
Golden Elegance	Intermediate lemon yellow decorative	Dec. 20	58.00
#2 Golden Elegance	Dark yellow sport of Elegance	Dec. 20	72.00
Sun Valley	Intermediate to large intense yellow pompon	Dec. 20	66.00
Vibrant	Intermediate deep lemon decorative	Dec. 20	56.00
Sunrise	Yellow pompon, as a late Gold Coast	Dec. 20	64.00
BRONZE & RED			
Bronze Alvoda	Large bright amber bronze decorative	Dec. 15	64.00
Christmas Greeting	Large red decorative	Dec. 15	66.00
Merrymaker	Intermediate red single	Dec. 20	62.00
Poinsettia	Large scarlet red daisy	Dec. 20	64.00
PINK			
Alvoda	Large smooth Portrait pink decorative	Dec. 15	50.00
Dark Alvoda	Large mulberry pink decorative	Dec. 15	70.00
Medallion	Intermediate lavender rose pompon	Dec. 20	66.00
Lynda McLane	Late pink pompon	Dec. 25	56.00

15 WEEK VARIETIES

PINCH SEPT. 3

WHITE			
Revelation	Intermediate white decorative	Dec. 25	50.00
Snow	Intermediate white pompon	Dec. 25	54.00
Talmeda	Intermediate white pompon	Jan. 5	58.00
Illini Cascade	Large clear white decorative	Jan. 5	60.00
Illini Snowbound	Large white informal decorative	Jan. 5	60.00
YELLOW			
Siren	Deep yellow decorative	Dec. 25	54.00
Yuleflame	Large deep lemon decorative	Dec. 25	62.00
Yellow Snow	Intermediate yellow pompon	Dec. 25	52.00
Yellow Illini Cascade	Large, lemon sport from Illini Cascade	Jan. 5	74.00



ICEBREAKER



SUN VALLEY

COLLECTION #1

25 each of 12 varieties—
300 Total for \$32.60 for lot.

FOR CUT AND BEDDING—

medium height and early.

Bloom

Chris Columbus, White decorative	Oct. 1
King's Ransom—Lemon yellow decorative	Oct. 10
Remembrance—Carmine Red pompon	Oct. 5
Ann Ladygo—Light Pink anemone	Oct. 5
Astoria—Yellow Pompon	Oct. 5

CUSHION TYPES—Compact for bedding

Corsage Cushion—

White serrated decorative

Oct. 1

Minn Pink—Pink decorative

Sept. 25

Ruby Mound—Bright Red Pompon

Sept. 25

Golden Cushion—

Compact yellow decorative

Sept. 25

NOVELTY TYPES—Tubular petaled

Jessamine Williams—

White Spoon decorative

Oct. 1

Dolli-Ette—Bright bronze spoon

Oct. 10

Joan-Ette—Small Ivory Fujii

Oct. 15

COLLECTION #2

50 each of the above 12 varieties—
500 Total for \$41.20 for lot.



CUSHION TYPE



NOVELTY TYPE

For 1964

GARDEN VARIETIES

A large program is under way to culture and select a substantial list of other garden varieties. These stunt free, clean and healthy cuttings will be offered in 1964.

FERT-O-JET — Fertilizer • Injectors

This Automatic Fertilizer Injector is machine engineered to inject into the water system soluble fertilizers in proportions suitable for maximum plant growth. By using the Fert-O-Jet method of fertilization a mild application is applied each time plants are watered assuring a uniform application to all plants.

Available in two models

MODEL E\$475.00
MODEL U-400 (Portable) 300.00

Write for complete descriptive literature.

CHAPIN SYSTEM**Chapin Watermatic Pot Watering System**

A method of putting a measured amount of water on hundreds of plants simultaneously without hand labor.

This is a simple system of plastic tubing leading from a plastic main to each pot. The flow of water is measured and shut off by the Chapin Watermatic valve.

You can now water a 100-foot bench or a whole greenhouse of potted plants at one time. Each plant receives individual watering at the same time.

- *Versatile.* Any number of potted plants may be watered anywhere on a bench.
- *Portable.* The system may be easily moved from one bench to another.

KITS FOR BENCHES 100 FOOT LONG

Kits include 100' predrilled 1/2" plastic main, black polyethylene leader tubes, pot clips and fittings for 2 ends.

4K Kit for 400 pots — 100 ft. bench\$34.95
 5K Kit for 500 pots — 100 ft. bench 40.20
 6K Kit for 600 pots — 100 ft. bench 46.45

TYPICAL COMPLETE SYSTEMS

For 100 ft. bench and 400 pots—includes 4K Kit, strainer and Watermatic Valve\$65.22
 For four 100 ft. benches and 1600 pots—includes four 4K Kits, strainer and Watermatic Valve.....\$170.07

CUSTOM LENGTH BENCHES

To figure the cost per bench:

Length of bench x 10¢ per foot

Number of pots x 6¼¢ per pot

Extra * sets of end fittings x \$1.30 per set

* One set required for each 300 pots (one set included with each 100' of main).

Setup charge of \$3.00 on orders totaling less than 100' of main.

ONE LINE STRAINER SHOULD BE USED WITH
EACH 1,600 POTS.

Line Strainer No. A 3/4 ATWB Brass with monel screen 100 mesh.

Price each \$7.10

PLANTNET BENCH FABRIC

Eliminates costly hand stringing and tying

PRICE SCHEDULE

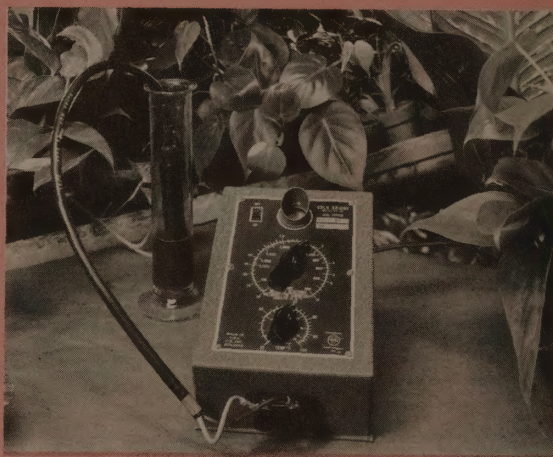
36" width - 6 MESH across, 200 ft. long\$12.85
 42" width - 7 MESH across, 200 ft. long 14.00
 48" width - 8 MESH across, 200 ft. long 15.25
 54" width - 9 MESH across, 200 ft. long 16.80
 60" width - 10 MESH across, 200 ft. long 18.20

AERO-DRAINS

Avoid the fuss of makeshift broken pot pieces. This pot hole cover is made of sturdy plastic. Used either side up when placed in the flower pot. Will permit necessary drainage and the air to flow freely. Can be used in pots for 4"—12".

1,000 to 9,000.....per 1,000 \$6.50
 10,000 to 49,000.....per 1,000 6.15
 50,000 to 99,000.....per 1,000 5.95

Minimum Order 1,000

**THE RD B15 SOIL TESTER**

For measuring total soluble salts in soils.

Soil tester and dip cel complete.....\$102.25

Gloeckner

**CYCLIC-LIGHTING
PROGRAMMER**

Current research at the U. S. D. A. at Beltsville, Maryland, has clearly proven that chrysanthemums can be kept fully vegetative by lighting the crop 6 minutes out of 30 minutes for the regular period at midnight instead of continuous light. Many different combinations were found to be effective, with the safe limits on certain varieties as low as 5% of the continuous amount. While "flashing" every minute kept stock just as vegetative, the wear and tear on points and equipment is greater, having to "make and break" 30 times more circuits.

ADVANTAGES OF CYCLIC LIGHTING:

1. Saves 80% of total lighting power.
2. Lamps last longer.
3. Easier on Power Service and Equipment.
4. New installations can be made with lighter wire and equipment.
5. Takes the load off an already "overloaded" system—safer!
6. Can increase area planted with the same power service.
7. With "demand meters" advantage is even greater as the peak load is only 20% of what it would be under conventional lighting.

PRICE
\$95.00
COMPLETE

THE BADGER POT



This is the new Polystyrene pot designed especially for the pot mum trade. The colors add sales appeal to your pots and they really do a good growing job.

This lightweight polystyrene pot does not support algae growth to the extent that clay pots do and is extremely light weight. It requires less watering than clay and does not break if dropped.

Size: 6" Standard. Outside Measurement—6 $\frac{5}{8}$ " wide, 5 $\frac{3}{4}$ " high
Inside Measurement—6" wide, 5 $\frac{3}{8}$ " high

Color: White • Green • Fawn

Units per carton: 300

Size of carton: 24" x 30" x 43"

Weight: 25 lbs. (approx.)

Prices: (f.o.b. Wisconsin)

	Per 1000		Per 1000
300 - 1,200	\$97.50	6,300 - 12,000	88.00
1,500 - 6,000	93.00	12,300 - 24,000	83.50
24,300 and over	81.50		

If order is booked at one time, deliveries can be divided monthly for the year.
Shipments East of Mississippi sent prepaid at \$5.00 per thousand extra.
Minimum quantity five cases.

FREE SAMPLE UPON REQUEST

BIRD PERENNIAL POTS

(Light Weight) (Sold in case lots only)
For Garden Mum Sales in Fall

	Height	Top Diameter	Bottom Diameter	Quantity per Case	Price per 1000
Mum pan	5"	8"	7"	200	\$65.00
Small perennials	5 $\frac{1}{2}$ "	5"	4"	200	47.50
Large perennials	6 $\frac{1}{2}$ "	6"	4 $\frac{1}{2}$ "	200	58.50
Roses, peonies and shrubs.	9 $\frac{1}{2}$ "	7"	5 $\frac{1}{2}$ "	200	69.00

FERTILIZERS

PETERS M77 SEQUESTERED-CHELATED SOLUBLE FERTILIZERS

(Packed in 25-pound bags only)

Freight prepaid to any state in the union with the exception of Alaska and Hawaii, on 300 pounds or more. West of the Mississippi add 3 cents per pound on 300 pounds and over. Packed 25 lbs. per bag.

20-20-20 GENERAL PURPOSE

15-15-30 CHRYSANTHEMUM SPECIAL

1 - 3 bags	\$7.50 per bag
100 - 975 lb.	26c per lb.
1000 - 1975 lb.	25c per lb.

POTASSIUM NITRATE

Per pound up to 1 ton	14c
Ton price per pound	13c

Packed only in original bag.

100 pound lots only.

(For packaging in 25-pound bags add 2 cents per pound)

13-6-6 ORGANIC SPECIAL

(Non-Soluble)

The finest pot plant feeding ever designed. Combines the best features of highest grade natural organics and Uramite Nitrogen. Being widely used in combination with liquid feeding with excellent results.

	1-3 bags	100 to 975 lbs.	1000 to 1975 lbs.	2000 lbs. up
13-6-6	\$8.00 ea.	\$.30 lb.	\$.28 lb.	\$.26 lb.

FRITTED POTASH

(32% K2O)

Contains 32% K2O, plus fritted Trace Elements. Will not leach away. Gives a 6 to 9 months assured supply of Potash.

	1-3 bags	100 to 975 lbs.	1000 to 1975 lbs.	2000 lbs. up
	\$9.00 ea.	\$.32 lb.	\$.31 lb.	\$.30 lb.

DUPONT URAMITE

(38% N)

Packed only in 50-lb. bags

	1-9 bags	10-39 bags	40 bags and over
	\$12.00 bag	\$11.50 bag	\$11.00 bag

FRITTED TRACE ELEMENTS

These fritted trace elements will give an assured, non-leaching supply of trace elements for periods up to 1 year and possibly longer.

	100-275	300-975	1000-1975	2000 lbs. and up
	\$.26 lb.	\$.24 lb.	\$.22 lb.	\$.20 lb.
Less than 100 pounds	\$8.00 per 25-pound bag.			

ELECTRA (5-10-3)

A highly organic fertilizer designed especially for florists. Contains major, minor and trace elements needed for plant growth.

Price: 80 lbs. \$6.00

HIDROPON

10% Nitrogen—12% Phos. Acid—25% Potash

A most unusual combination of many soluble plant foods. Trace elements mostly chelates and other products added but not claimed.

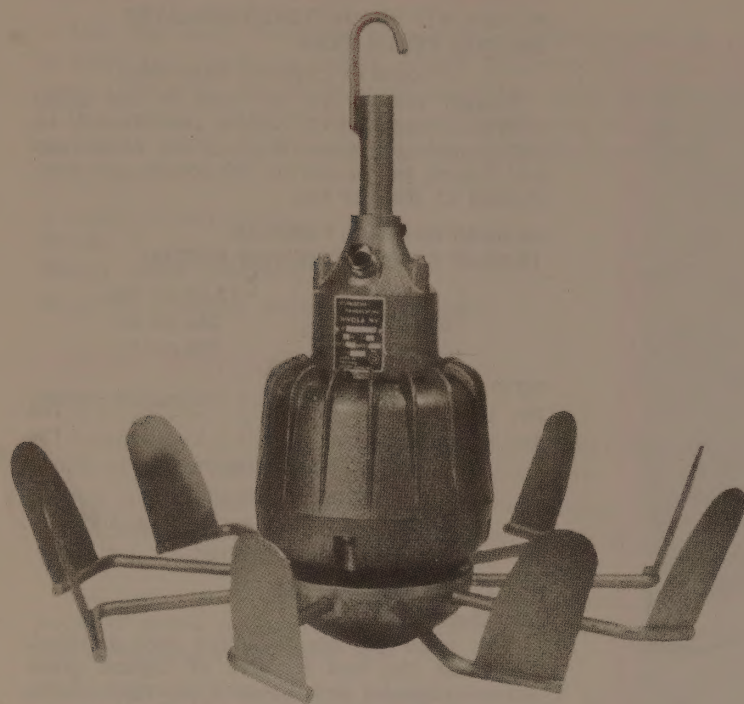
25 lbs.	\$ 8.00
50 lbs.	12.00
100 lbs.	20.00

LIQUID "M" POWDERED

17% Nitrogen—24% Phos. Acid—18% Potash

Trace elements mostly as chelates and other products added but not claimed.

25 lbs.	\$ 8.00
50 lbs.	12.00



NIVOLA DUTCH MILL FANS

Moves 5 to 9 thousand cubic feet of air per minute.

Distributes heat uniformly and saves fuel.

Prevents stagnant air and disease.

Provides maximum air cooling in summer.

Specifications: 60 cycle—either 110 or 220 volts. Speed, 720 rpm (140W). $\frac{1}{6}$ horsepower motor. $\frac{2}{3}$ amps.—220 V.; $1\frac{1}{3}$ amps.—110 V.

Installation. Simply hangs from a hook. Install to every 50 lineal feet in houses 25 to 50 feet wide. Approximate blade height above soil, 10 ft.

Prices in U.S.A. F.O.B. Columbus, Ohio

1-5 Fans—\$80.00 ea. 6-25 Fans—\$77.50 ea. 26 up—\$75.00 ea.

MISTING EQUIPMENT

COMPLETE MISTING STARTER KIT

Enough for a 50 ft. bench

1—#603 Fixed Cycle Timer

Makes a complete cycle every 3 min.

16—White Showers Nozzles

1—Solenoid Valve $\frac{1}{2}$ "

1—Strainer $\frac{1}{2}$ "

\$60.00 for the above kit

GLOECKNER SUPER MIST CLOCK #7260

This clock which is 9" x 9" x $3\frac{1}{2}$ " was especially designed for the Gloeckner Co. for the specific job of controlling low pressure mist. It is possible with this timer to carry on diversified greenhouse duties at the same time. Super mist clock six stations and it is possible to have all working simultaneously for any combination of duties. It has six frequencies from $3\frac{3}{4}$ minutes to 120 minutes adjustable to from 2 to 220 seconds.

Price \$79.50

FOG NOZZLES

An all-brass nozzle that breaks water into a fine mist or foglike spray.

Available in 1, $2\frac{1}{2}$ and 5 GPM sizes. Please specify size when ordering each \$1.95

HOZON

Attaches between hose and faucet. Suction tube is dropped into bucket of soluble fertilizer which is drawn in, safely diluted and applied while you water each \$2.25

PETALIFE

Use this material to extend the life of your cut flowers. Experiments at Universities have shown that Petalife will increase the keeping quality of your flowers far beyond the time shown by other cut flower preservatives.

50 lbs. drum.....per 100 lbs. \$40.00
200 lbs. and up prepaid

FIBER GLASS DRUMS

This fine Fiber Glass Drum is ideal for holding liquid fertilizer. Can be easily tapped or drilled to accommodate spigot. Holds 45 gallons \$25.00

RESPIRATOR

One of the first respirators to meet the requirements of USDA for protection against dust, spray, mist and vapors. Filter cartridges are filled with the highest grade activated charcoal. Each cartridge has a built in fibrous filter for stopping particles of dust, mist and spray. R-71558—Respirator—goggle combination.

Complete with filter and cartridges \$9.80
R.58—replacement filter cartridges (3 per package)... 4.80

WATER BREAKERS

Cast aluminum with a face of 400 $1/32$ " holes. Suitable for established seed flats—plants and bench watering.

Priceeach \$1.50

Extension handle designed for Dram Water Breaker.

16" with rubber grip.....each \$1.50

24" with rubber grip.....each 1.80

36" with rubber grip.....each 2.25

48" with rubber grip.....each 2.75

TWISTEMS

Handy paper covered plant tie that are deep green in color. The wire running through the center of the tape makes them unbreakable.

	Per 1,000	Per 5,000	Per 10,000
4"	\$1.00	\$ 4.60	\$ 8.90
8"	1.75	8.00	15.50
12"	2.60	12.20	23.50
16"	3.50	16.25	31.25

BAMBOO CANE STAKES

Dyed Green, of Pencil Thickness

	Per Bale	Price Per Bale
1½ ft.	2,000	\$ 7.00
2 ft.	2,000	9.00
2½ ft.	2,000	13.00
3 ft.	2,000	16.00
3½ ft.	2,000	20.00
4 ft.	2,000	24.00

SPLIT BAMBOO STAKES

Dyed Green

	Per Bale	Price Per Bale
12 in.	5,000	\$12.50
15 in.	5,000	16.00
18 in.	5,000	20.00
24 in.	5,000	25.00

Quantity Discount on Cane Stakes

5 bales — 5%
10 bales — 10%
25 bales — 15%

	Per 1,000	Per Cs. 6,000
12 in.	\$ 5.25	\$29.65
15 in.	5.90	33.40
18 in.	6.50	35.25



PLANTABLE POTS

These are now extensively used to hasten programs and smooth out tight situations where a crop may be delayed. The cuttings can be started in a 3" square jiffy preferably and can be pinched in the pot. We caution you to try and bench before the 5th week, as crop may suffer otherwise.

PULLEN POT

The new pot made of Bagasse on Sugar Cane pulp. This is superior to the peat pot in water drainage. It also disintegrates into the soil after planting in a more complete way than peat so that there can be no restrictions of roots after bedding.

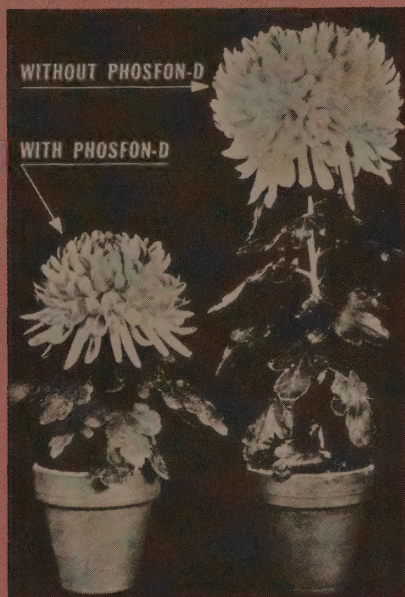
	Per Cs.	Per M	10,000-24,000	25,000 up
2¼" square ...	2,500	\$ 9.10	\$ 8.70	\$ 8.30
2¼" round ...	3,000	7.95	7.60	7.25
3" square	1,000	16.90	16.15	15.40

150 lbs. sent prepaid

JIFFY POTS 3" Square

1,000 - 9,000	\$16.90 per 1000
10,000 - 24,000	16.15 " "
25,000 up	15.40 " "

150 lbs. sent prepaid



TREATED AND UNTREATED POT MUMS

PHOSFON D

The new material for controlling height of chrysanthemum pot plants. The powder may be mixed with the potting soil—one pound treats 3000 to 5000 pots.

One pint of the liquid is substantially equal to one pound of the powder.

This is the same material that is used for controlling height of Easter Lilies.

Phosfon D Powder	\$17.95 per lb.
Liquid	17.95 per pint

INSECTICIDES

ARAMITE 15W

Used to control Red Spider Mites.

4 lb. bag \$3.50 Case 12 x 4 lb. bags \$35.00

ARAMITE LIQUID 2E

Red Spider Mite Control.

1 gallon \$13.00

CHLORDANE 8E (72%)

For control of Thrips, Leaf miners, etc.

1 gal. \$12.25 Case 4 x 1 gal. \$39.40

CHLOROBENZILATE 25W

For control of Spider Mites.

4 lb. bag \$5.80 Case 12 x 4 lb. bags \$52.80

D. D. T. 50W

General purpose. For most leaf eating, chewing insects, soil pests, thrips, white flies.

4 lb. bag \$1.55 Case 12 x 4 lb. bags \$16.50

DIAZANON 25W

Controls Aphids, Mites, etc.

4 lb. bag \$6.90

DIBROM 8E

Controls Aphids, Red Spiders, Leafhoppers, etc.

1 gal. \$29.50

DIELDRIN 50W

Controls Grasshoppers and Thrips.

4 lb. bag \$7.35 Case 12 x 4 lb. bags \$83.80

ENDRIN 1.6 LB. LIQUID

Excellent for control of Cyclamen Mite, Aphids, Thrips, etc.

1 gallon \$11.75 4 gallons \$10.40 per gal.

KELTHANE W

For control of both Cyclamen and Red Spider Mites.

4 lb. bag \$4.55 Case 12 x 42 lb. bags \$50.40

KELTHANE 18.5 LIQUID

Red Spider Mite control.

1 gal. \$10.35 Case 4 x 1 gal. cans \$10.00 per gal.

LINDANE 25W

For Aphids, Thrips, Leafhoppers, Spittlebugs, Symphylids.

4 lb. bag \$7.00 Case 12 x 4 lb. bags \$78.00

LINDANE 1½%

50 lb. bag \$11.75

MALATHION 25W

For Spider Mites, Aphids, Thrip, Scales, Leafhoppers and Rollers, Mealy Bugs, Caterpillars, Beetles, White Flies and Tarnished plant bugs.

4 lb. bag \$3.00 Case 12 x 4 lb. \$32.40

MALATHION LIQUID 5-E

1 gallon \$11.50

NICO FUME LIQUID

To control Aphids, Thrips, Chrysanthemum Leaf Minor and Marguerite Fly.

1 gallon can \$16.25

PARATHION 15W

To control Aphids, Spider Mites, Caterpillars, Leaf Rollers, Thrips, Beetles, Mealy Bugs, White Flies and Rose Midge.

3 lb. bag \$1.75 Case 16 x 3 lb. bags \$26.50

INSECTICIDES (Cont'd.)

SEVIN 4 FLOWABLE

For Aphids, Leafhoppers and miners.

1 gallon \$9.25

P-40 (2% SODIUM SELENATE)

For chewing and sucking insects on plants other than edible crops. Food crops not to be grown in treated area for 12 months.

25 lbs. \$12.50 50 lbs. \$22.50 100 lbs. \$40.00

SODIUM SELENATE (PURE)

For control of Aphids, Red Spider, Cyclamen Mites and some Nematode.

4 oz. \$4.00 1 lb. \$12.50

SYSTOX

Asystematic insecticide for control of Foliar Nematode, Aphids and Spider Mites. (For soil application only.)

1 gallon \$22.00

TEDION 25

For control of Red Spider Mites.

2 lb. bag \$4.00 Case 12 x 2 lb. bags \$45.60

TEDION 90

For resistant Spider Mites. (Can combine with Aramite for highly resistant mites.)

1 lb. bag \$7.20 Case 12 x 1 lb. bags \$81.60

THIMET 10% GRANULAR

For Aphids and two spotted mite.

50 lb. 55c lb.

THIODAN EMULSION

For control of Aphids, White Fly and Cyclamen Mites.

1 gallon \$10.25

THIODAN 50W

2 lb. bag \$5.00 Case 12 x 2 lb. bags \$58.00

VAPATONE XX EMULSIVE

For control of Aphids, Thrips, Red Spider and Leaf Hopper Nymphs.

1 gallon \$11.50

SPREADER STICKER

For use with Agricultural Chemicals.

1 gallon \$9.50

FUMIGATORS

FULEX PARATHION FUMIGATOR

For Red Spider, Aphids and Thrip.

Carton—24 Cans.

2,000 cu. ft. \$12.00 10,000 cu. ft. \$17.00

5,000 cu. ft. \$14.50 20,000 cu. ft. \$26.00

FULEX APHID SMOKE FUMIGATOR

For Aphid and adult White Fly.

Carton—24 Cans.

2,000 cu. ft. \$11.00 10,000 cu. ft. \$17.00

5,000 cu. ft. \$14.00 20,000 cu. ft. \$25.00

FULEX SPIDER MITE FUMIGATOR

For Red Spider including some parathion resistant strains on Carnations, Chrysanthemums and Snaps.

Carton—24 Cans.

2,000 cu. ft. \$11.50 10,000 cu. ft. \$19.00

5,000 cu. ft. \$14.50 20,000 cu. ft. \$31.00

FULEX NICOTINE FUMIGATOR

Carton—12 Cans.

10,000 cu. ft. \$8.50 20,000 cu. ft. \$14.00

FUMIGATORS (Cont'd.)

FULEX TEDION FUMIGATOR

Carton—12 Cans.

5,000 cu. ft. \$9.50 10,000 cu. ft. \$12.50

20,000 cu. ft. \$21.00

PLANT FUME 103

For control of Spider Mite, Aphid, Thrip.

Carton—36 cans 5,000 cu. ft. \$12.00

Carton—12 cans 20,000 cu. ft. \$12.00

TEDION® DITHIO FUMIGATORS

Contains 15% Tedion, 12.5% Dithio for control of resistant Red Spider, Mites, Aphids, White Fly, Mealy Bug, soft brown scale and Thrip.

10,000 cu. ft. \$15.00 per carton of 12

20,000 cu. ft. \$26.00 per carton of 12

THIODAN

(Pressure Fumigators)

Contains 15% Thiodan. For the control of resistant Green Aphids, White Fly, Chrysanthemums, Green Aphid and many other Aphid species.

10,000 cu. ft. \$12.00 per carton of 12

20,000 cu. ft. \$18.00 per carton of 12

FUNGICIDES

A. D. O.

A drench for controlling damp-off in seed flats. Also effective in controlling the spread of Rhizictonia, Pythium and Fusarium, Stem Rot Diseases.

Pint (treats 1,000 sq. ft.) \$4.95 Quart \$9.50

BOTRAN 50% WETTABLE

For the control of Botrytis grey mold on Mums, Carnations, Begonias, Hydrangeas, Geraniums, Gladiolus.

3 lb. bag \$5.55 Case 6 x 3 lb. bags \$28.85

BOTRAN 8% DUST

For the control of Botrytis grey mold on Chrysanthemums, Hydrangeas, Geraniums and Roses in the field and storage.

50 lb. bag only \$24.00

CAPTAN 50W

For Leaf Spot and Botrytis control. Not adequately effective against Rusts. Powdery Mildew, Bacteria.

5 lb. \$4.50 10 x 5 lbs. \$40.00

FERBAM

Controls Fungus Leaf Spots. Not effective against Bacteria or Powdery Mildew.

3 lb. bag \$2.00 Case 12 x 3 lb. bags \$21.60

TERRACHLOR W. P. 75% (PCNB)

Soil treatment for control of Rhizoctonia and Sclerotium Rolfii.

5 lb. bag \$4.65 Case 10 x 5 lb. bags \$44.00

ZINEB 65W

To control Rusts, Fungus Leaf Spots, Botrytis Blights. Not effective against bacteria or Powdery Mildews.

3 lb. bag \$2.50 Case 16 x 3 lb. bags \$37.00

VAPAM (SOIL FUMIGANT)

For controlling weeds, weed seeds, Nematodes, and soil Fungi.

1 gallon \$4.50

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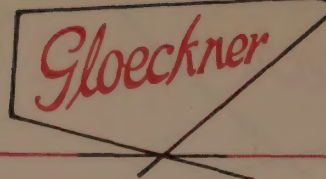
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BLACK SHADING CLOTH

Black Sheen cloth guaranteed to reduce the light intensity to 2 foot candles or less when shading your early chrysanthemums.

#575—Quality cloth sewn in multiple of 18-inch widths to your specifications.

Prices unsewn—**58½¢ yd.**

Sewn to specifications—**60½¢ yd.**

#258—Extra heavy cloth for longer service sewn in multiples of 18-inch widths to your specifications.

Price unsewn—**65¢ yd.**

Sewn to specifications—**67¢ yd.**

Cloth is approximately 36 inches wide unsewn in rolls or sewn to your dimensions in multiples of 18 inches. There is a loss of about 2 inches per yard in width because of shrinkage in preparation and overlapping in sewing. So allow for this in estimating the width of the cloth you need. Here is a chart to help you estimate the width and length of the cloth required to cover different sized benches or beds with wire placed 4 feet above the bench:

For a bench of this width	Use cloth of this width	And add to length for end hangover
3 feet	12 feet	9 feet
3½	12	8½
4	13½	9½
4½	13½	9
5	15	10

WHEN ORDERING . . .

SPECIFY THE TYPE YOU WANT!

Prices subject to change without notice.

1963

JANUARY

Sun	Mon	Tues	Wed	Thur	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

JULY

Sun	Mon	Tues	Wed	Thur	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

FEBRUARY

Sun	Mon	Tues	Wed	Thur	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

AUGUST

Sun	Mon	Tues	Wed	Thur	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

MARCH

Sun	Mon	Tues	Wed	Thur	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

SEPTEMBER

Sun	Mon	Tues	Wed	Thur	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

APRIL

Sun	Mon	Tues	Wed	Thur	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

OCTOBER

Sun	Mon	Tues	Wed	Thur	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

MAY

Sun	Mon	Tues	Wed	Thur	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

NOVEMBER

Sun	Mon	Tues	Wed	Thur	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

JUNE

Sun	Mon	Tues	Wed	Thur	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

DECEMBER

Sun	Mon	Tues	Wed	Thur	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

FLOWER HOLIDAY CALENDAR

YEAR VALENTINE'S DAY EASTER MOTHER'S DAY MEMORIAL DAY SWEETEST DAY THANKSGIVING CHRISTMAS

1963	FEB. 14	APRIL 14	MAY 12	MAY 30	OCT. 19	NOV. 28	DEC. 25
1964	FEB. 14	MAR. 29	MAY 10	MAY 30	OCT. 17	NOV. 26	DEC. 25
1965	FEB. 14	APRIL 18	MAY 9	MAY 30	OCT. 16	NOV. 25	DEC. 28

1964

1965

JANUARY

Sun	Mon	Tues	Wed	Thur	Fri	Sat
		1	2	3	4	
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

JULY

Sun	Mon	Tues	Wed	Thur	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

JANUARY

Sun	Mon	Tues	Wed	Thur	Fri	Sat
				1	2	
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

JULY

Sun	Mon	Tues	Wed	Thur	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

FEBRUARY

Sun	Mon	Tues	Wed	Thur	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

AUGUST

Sun	Mon	Tues	Wed	Thur	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

FEBRUARY

Sun	Mon	Tues	Wed	Thur	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					

AUGUST

Sun	Mon	Tues	Wed	Thur	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

MARCH

Sun	Mon	Tues	Wed	Thur	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

SEPTEMBER

Sun	Mon	Tues	Wed	Thur	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

MARCH

Sun	Mon	Tues	Wed	Thur	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

SEPTEMBER

Sun	Mon	Tues	Wed	Thur	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

APRIL

Sun	Mon	Tues	Wed	Thur	Fri	Sat
		1	2	3	4	
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

OCTOBER

Sun	Mon	Tues	Wed	Thur	Fri	Sat
			1	2	3	
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

APRIL

Sun	Mon	Tues	Wed	Thur	Fri	Sat
			1	2	3	
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

OCTOBER

Sun	Mon	Tues	Wed	Thur	Fri	Sat
				1	2	
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

MAY

Sun	Mon	Tues	Wed	Thur	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

NOVEMBER

Sun	Mon	Tues	Wed	Thur	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

MAY

Sun	Mon	Tues	Wed	Thur	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

NOVEMBER

Sun	Mon	Tues	Wed	Thur	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

JUNE

Sun	Mon	Tues	Wed	Thur	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

DECEMBER

Sun	Mon	Tues	Wed	Thur	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

JUNE

Sun	Mon	Tues	Wed	Thur	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

DECEMBER

Sun	Mon	Tues	Wed	Thur	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
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